MICROWAVE OVEN

SERVICE MANUAL

MODEL: MH-657PL

CAUTION
BEFORE SERVICING THE UNIT, READ
THE SAFETY PRECAUTIONS IN THIS MANUAL.

SAFETY PRECAUTIONS

This device is to be serviced only by properly qualified service personnel.
Consult the service manual for proper service procedures to assure continued safety operation and for precautions to be taken to avoid possible exposure to excessive microwave energy.

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

A) Do not operate or allow the oven to be operated with the door open.

B) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary; (1) interlock operation, (2) proper door closing, (3) seal and sealing surfaces (arcing, wear, and other damage), (4) damage to or loosening of hinges and latches, (5) evidence of dropping or abuse.

C) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.

D) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.

E) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

CAUTION

MICROWAVE RADIATION

DO NOT BECOME EXPOSED TO RADIATION FROM THE MICROWAVE GENERATOR OR OTHER PARTS CONDUCTING MICROWAVE ENERGY.

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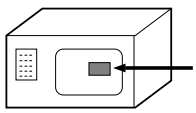
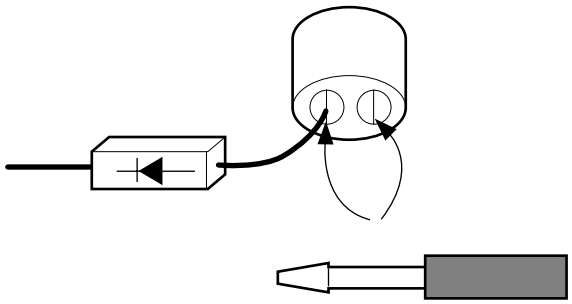
SPECIFICATIONS

ITEM	DESCRIPTION
MODEL	**MH-657PL**
Power Requirement	230 Volts AC 50 Hz Single phase, 3 wire grounded Microwave 1,300W Gril 1,250W Combination 2,500W
Power Output	900 Watts full microwave power (IEC60705)
Microwave Frequency	2,450 MHz
Magnetron	2M214 - 39F
Timer	0 ~ 99 min.
Outside Dimensions	508 (W) x 303 (H) x 374 (D) mm
Cavity Dimensions	320 (W) x 233 (H) x 347 (D) mm
Net Weight	17 kg (approx.)
Shipping weight	19 kg (approx.)
Control Complement	Microwave Power for Variable Cooking Power level MAX ..... Full power throughout the cooking time: 900W MED.-HIGH ..... approx. 80% of Full power: 720W MEDIUM ..... approx. 60% of Full power: 540W DEFROST ..... approx. 40% of Full power: 360W LOW/WARM..... approx. 20% of Full power: 180W Grill, COMBI
Nameplate Location	 Back side
Accessories	Owner's manual & Cook book Glass turntable Rotating ring Cook tray
This microwave oven is designed for household use only. It is not recommended for commercial purposes.	

CAUTIONS

Unlike other appliances, the microwave oven is high-voltage and high-current equipment. Though it is free from danger in ordinary use, extreme care should be taken during repair.

- DO NOT operate on a 2-wire extension cord during repair and use.
- NEVER TOUCH any oven components or wiring during operation.
- BEFORE TOUCHING any parts of the oven, always remove the power plug from the outlet.
- For about 30 seconds after the oven stops, an electric charge remains in the high voltage capacitor. When replacing or checking, you must discharge the high voltage capacitor by shorting across the two terminals with an insulated screwdriver.

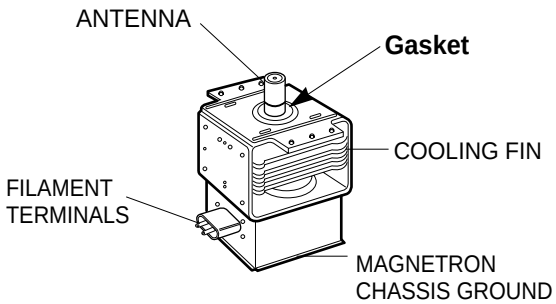


- Remove your watches whenever working close to or replacing the Magnetron.
- NEVER operate the oven with no load.
- NEVER injure the door seal and front plate of the oven cavity.
- NEVER put iron tools on the magnetron.
- NEVER put anything into the latch hole and the interlock switches area.

MICROWAVE RADIATION

Personnel should not be exposed to the microwave energy which may radiate from the magnetron or other microwave generating device if it is improperly used or connection.
All input and output microwave connections, waveguide, flange and gasket must be secure never operate the device without a microwave energy absorbing load attached.
Never look into an open waveguide or antenna while the device is energized.

- Proper operation of the microwave oven requires that the magnetron be assembled to the waveguide and cavity. Never operate the magnetron unless it is properly installed.
- **Be sure that the magnetron gasket is properly installed around the dome of the tube whenever installing the magnetron.**



MAGNETRON

THE OVEN IS TO BE SERVICED ONLY BY PROPERLY QUALIFIED SERVICE PERSONNEL.

INSTALLATIONS

BEFORE YOU BEGIN, READ THE FOLLOWING INSTRUCTIONS COMPLETELY AND CAREFULLY.

INSTALLING

1. Empty the microwave oven and clean inside it with a soft, damp cloth. Check for damage such as misaligned door, damage around the door or dents inside the cavity or on the exterior.

2. Put the oven on a counter, table, or shelf that is strong enough to hold the oven and the food and utensils you put in it. (The control panel side of the oven is the heavy side. Use care when handling.)

3. Do not block the vent and the air intake openings. Blocking vent or air intake openings can cause damage to the oven and poor cooking results. Make sure the microwave oven legs are in place to ensure proper air flow.

4. The oven should not be installed in any area where heat and steam are generated, because they may damage the electronic or mechanical parts of the unit.
   Do not install the oven next to a conventional surface unit or above a conventional wall oven.

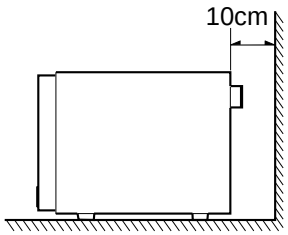
5. Use microwave oven in an ambient temperature less than 104°F(40°C).

6. Place the microwave oven on a sturdy and flat surface at least 10 cm(4 inches) from the wall.

7. Place the microwave oven as far away as possible from TV, RADIO, COMPUTER, etc., to prevent interference.

8. Do not touch the front glass during or after cooking of the Grill and Combination mode.
   This glass is very hot during heater operating.

9. Do not operate the oven at microwave and combination mode with Grill rack placed in the cavity when the oven is empty.



EARTHING INSTRUCTIONS

This microwave oven is designed to be used in a fully earthed condition.
It is imperative, therefore, to make sure it is properly earthed before servicing

WARNING-
THIS APPLIANCE
MUST BE EARTHED

IMPORTANT

The wires in this mains lead are colored in accordance with the following code:

Green-and-yellow:	**Earth**
Blue:	**Neutral**
Brown:	**Live**

As the colors of the wires in the mains lead of this appliance may not correspond with the colored markings identifying the terminals in your plug, proceed as follows.

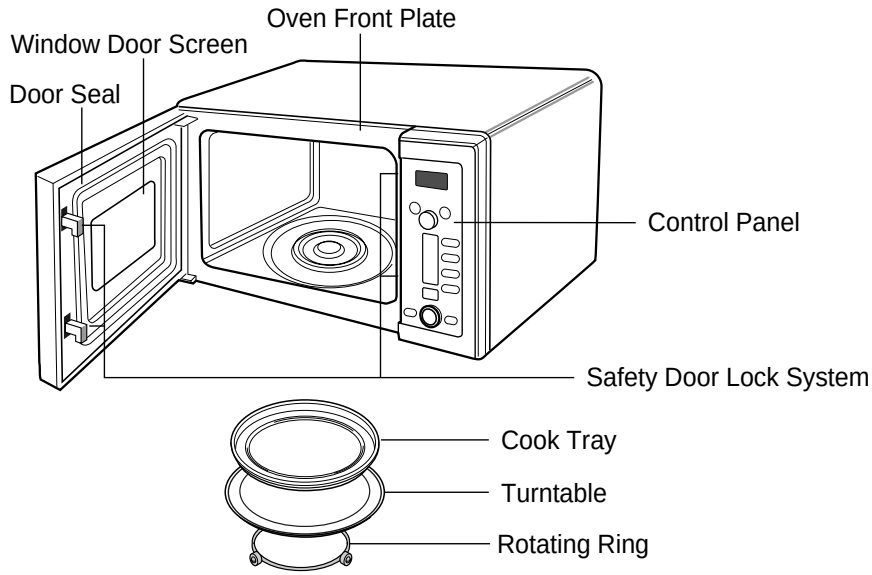
The wire which is colored **green-and-yellow** must be connected to the terminal in the plug which is marked with the letter **E** or by the **earth symbol** (⏚) or colored **green** or **green-and-yellow**.

The wire which is colored **blue** must be connected to the terminal in the plug which is marked with the letter **N** or colored **black**.

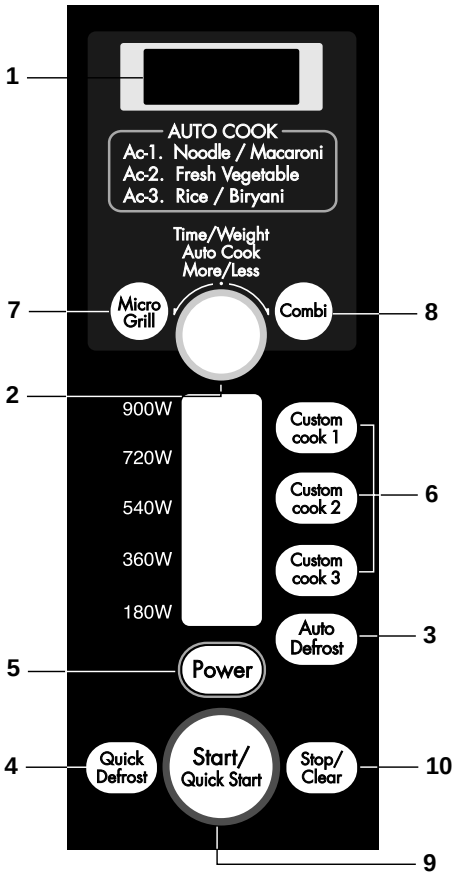
The wire which is colored **brown** must be connected to the terminal in the plug which is marked with the letter **L** or colored **red**.

OPERATING INSTRUCTIONS

FEATURES



CONTROL PANEL



1. INDICATORS

2. DIAL

- **AUTO COOK:** Used to cook the foods listed by one touch.
- **LESS/MORE:** Used to change cooking time.
- **WEIGHT:** Used to select the desired weight.
- **SET CLOCK:** Used to set the time of day.

3. AUTO DEFROST: Used to select the auto weight defrost.

4. QUICK DEFROST: Used to select the quick defrost.

5. TEMPERATURE

6. MEMORY COOK : Used to memory key for favorite cook.

7. POWER: Used to select the desired power level for cooking.
GRILL: Used to select the grill cooking.

8. COMBI: Used to select the combination cooking.

9. START: One tap allows oven to begin functioning.

10. STOP/CLEAR: Used to stop oven and clear all entries except time of day.

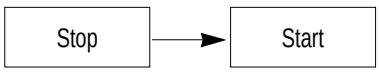
OPERATING SEQUENCE

The following is a description of component functions during oven operation.

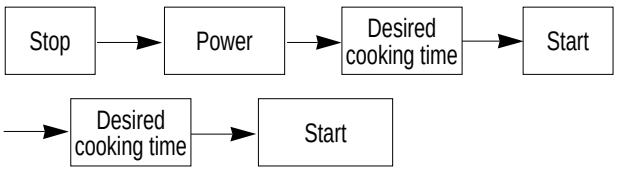
1. CANCEL FUNCTION

Touch the STOP pad whenever you need to cancel an entry or a function currently in use.
The display will either return to the last item entered or to the clock.

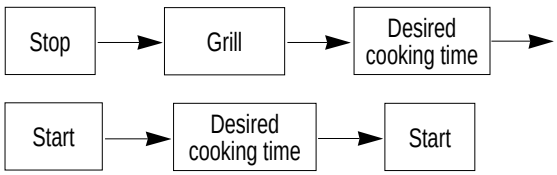
2. QUICK START



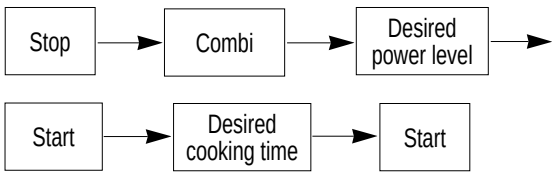
3. MICROWAVE COOKING



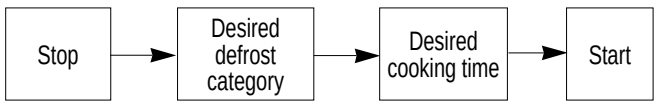
4. GRILL COOKING



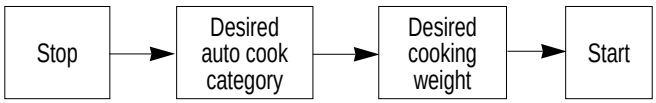
5. COMBI COOKING



6. AUTO WEIGHT DEFROST



7. AUTO COOK



8. CHILD LOCK

This oven has a CHILD LOCK feature

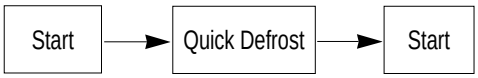
- TO SET CHILD LOCK
  - Touch the Stop pad
  - Touch STOP pad → **L** appear in the display.

- TO CANCEL CHILD LOCK
  - Touch the Stop pad
  - touch STOP pad → **L** disappears.

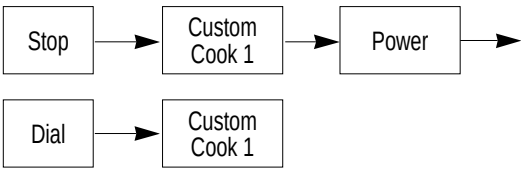
9. MORE OR LESS COOKING

The **DIAL** knob to increase cooking time. The cooking time will increase by 1 second for each turn of the dial.

10. QUICK DEFROST

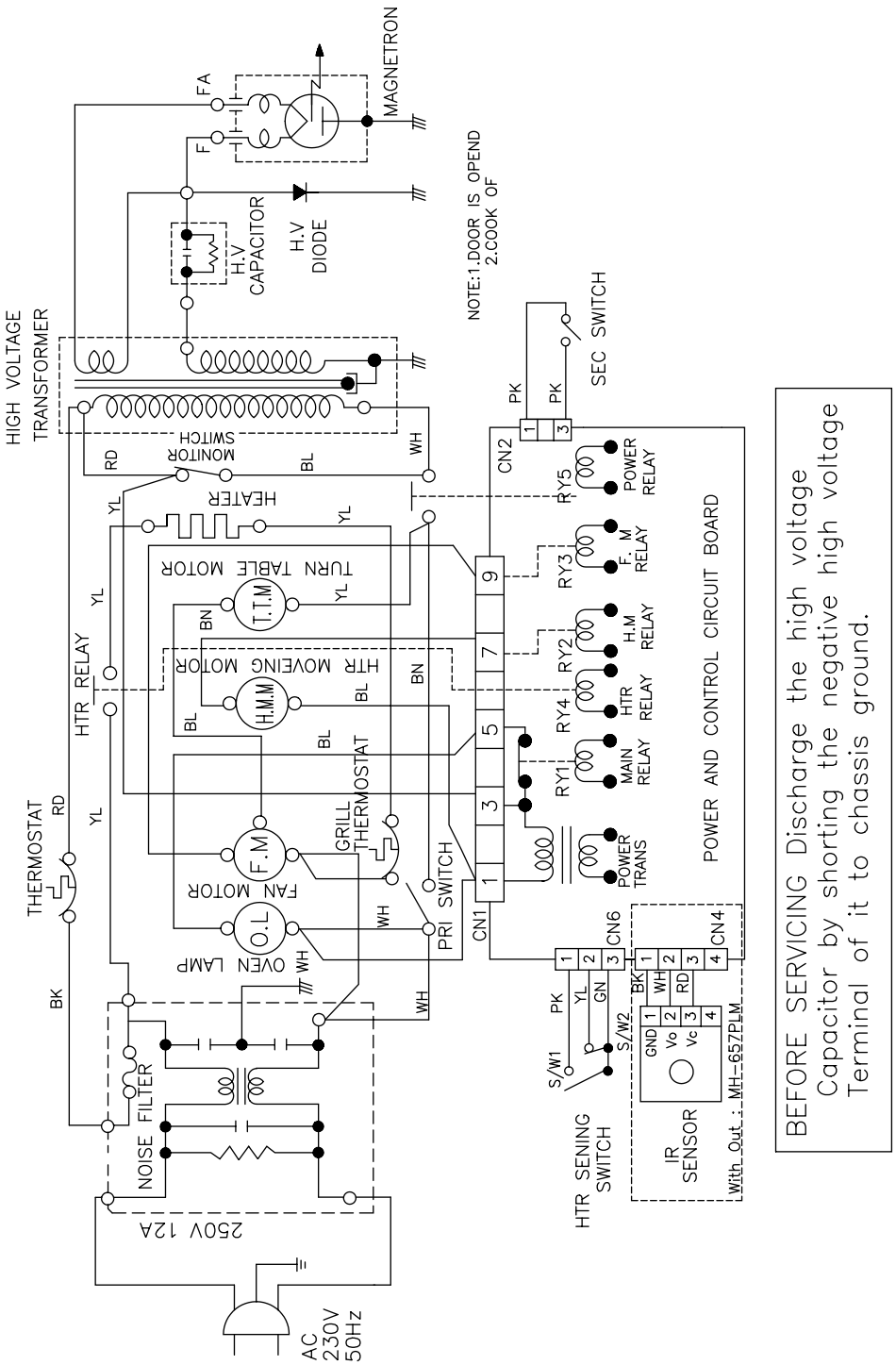


11. MEMORY SETTING



To restore your favorite cook when you cook, use it by pressing the favorite cook key. Press MEMORY-1 button. “FA-1” appears on the display.
Turn **DIAL** knob to decrease cooking time. The cooking time will decrease by 1 second for each turn of the dial.

SCHEMATIC DIAGRAM



CIRCUIT DESCRIPTION

GENERAL DETAILS

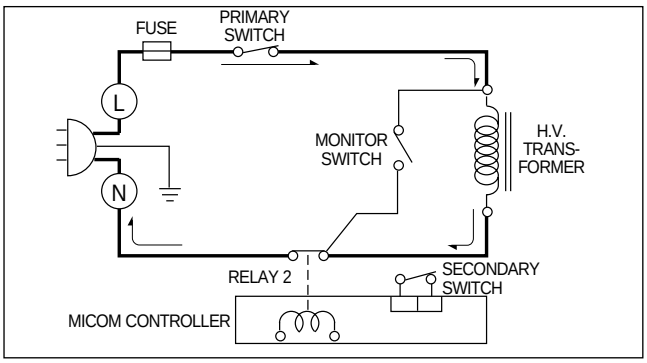
- The low voltage transformer supplies the necessary voltage to the micom controller when power cord is plugged in.
- When the door is closed, the primary switch is ON, the secondary switch is ON, and the monitor switch opens (contact COM and NO).

WHEN SELECTING COOKING POWER LEVEL AND TIME

- The micom controller memorizes the function you set.
- The time you set appears in the display window.
- Each indicator light turns on to indicate that the stage has been set.

WHEN TOUCHING THE START PAD

- The coil of the relay is energized by the micom controller.
- Power input is supplied to the high voltage transformer through the fuse to the primary switch and relay 2.
- Turntable rotates.



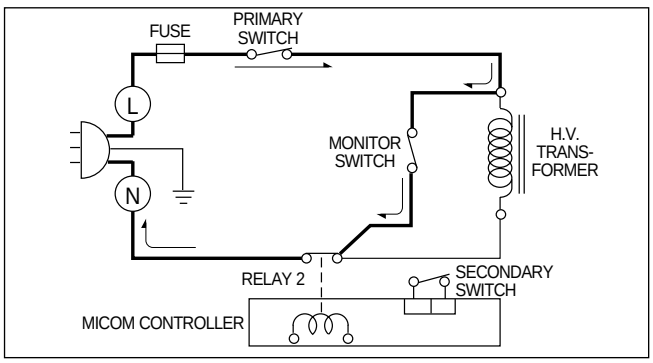
- The fan motor rotates and cools the magnetron by blowing the air (coming from the intake on the baseplate).
- The air is also directed into the oven to exhaust the vapor in the oven through the upper plate.
- Cooking time starts counting down.
- 3.2 volts AC is generated from the filament winding of the high voltage transformer. This 3.2 volts is applied to the magnetron to heat the magnetron filament through two noise-preventing choke coils.
- A high voltage of approximately 2100 volts AC is generated in the secondary of the high voltage transformer which is increased by the action of the high voltage diode and charging of the high voltage capacitor.
- The negative 4,000 Volts DC is applied to the filament of the magnetron.

WHEN THE OVEN IS SET AT ANY LEVEL EXCEPT MAXIMUM.

- The micom controller controls the ON-OFF time of relay 2 by the applied signal to vary the average output power of microwave oven as POWER LEVEL. (refer to page 1-1)
- One complete cycle of relay 2 is 22 seconds.

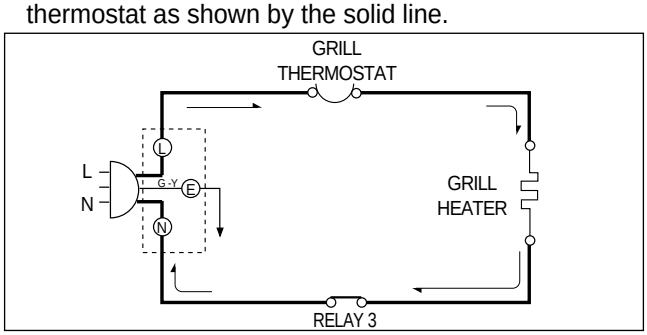
WHEN THE DOOR IS OPENED DURING COOKING

- Both the primary switch and relay 2 are cut off primary winding voltage of the high voltage transformer.
- ON-OFF of relay 2 is coupled electrically with opening and closing of the secondary switch.
- When the door is opened, the secondary switch is opened and when the door is closed, the secondary switch is closed.
- The cooking time stops counting down.
- Relay stops functioning.
- As the door is opened, if the contact of primary switch fails to open, the fuse opens due to the large current surge caused by the monitor switch activation, which in turn stops magnetron oscillation.



WHEN TOUCHING THE START KEY WITH THE GRILL COOKING FUNCTION SELECTED

- The contacts of the primary switch and the secondary switch close the circuit.
- A.C. voltage is applied to the grill heater through grill thermostat as shown by the solid line.



- Turntable rotates.
- The fan motor rotates.
- The air is also directed into the oven to exhaust the vapor in the oven through the base plate and upper plate.

SERVICE INFORMATION

TOOLS AND MEASURING INSTRUMENTS

NECESSARY TOOLS

Tools normally used for TV servicing are sufficient.
Standard tools are listed below.

- Diagonal pliers
- Long nose pliers
- Phillips screwdriver
- Flat blade screwdriver
- Wrench (size 5mm)
- Nutdriver (size 5mm)
- Adjustable wrench
- Soldering iron
- Solder
- Vinyl insulation tape
- Polishing cloth

NECESSARY MEASURING INSTRUMENTS

- TESTER(VOLTS-DC, AC., Ohmmeter)
- Microwave survey meter
  - Holaday HI-1500
    HI-1501
  - Narda 8100
    8200
- Inch scale
- 600 cc non conductive material beaker (glass or plastic), inside diameter: approx. 8.5 cm($3^1/2$ in.)
- Cylindrical and made of borosilicate glass vessel.
  max. thickness: 3 mm
  outside diameter: approx. 190mm
  height: approx. 90mm
- Glass thermometer: 100°C or 212°F (1 deg scale)

MICROWAVE LEAKAGE TEST

CAUTIONS

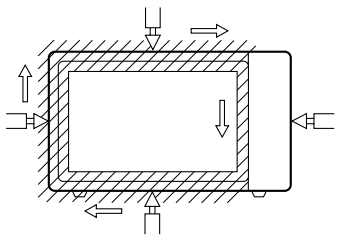
- **Be sure to check microwave leakage prior to servicing the oven if the oven is operative prior to servicing.**
- **The service personnel should inform the manufacture importer, or assembler of any certified oven unit found to have a microwave emission level in excess of 5 mW/cm²** and should repair any unit found to have excessive emission levels at no cost to the owner and should ascertain the cause of the excessive leakage. The service personnel should instruct the owner not to use the unit until the oven has been brought into compliance.
- **If the oven operates with the door open, the service personnel should:**
  - Tell the user not to operate the oven.
  - Contact the manufacturer.
- The service personnel should check all surface and vent openings for microwave leakage.
- Check for microwave leakage after every servicing. The power density of the microwave radiation leakage emitted by the microwave oven should not exceed 4 mW/cm². Always start measuring of an unknown field to assure safety for operating personnel from radiation leakage.

MEASURING MICROWAVE ENERGY LEAKAGE

- **Pour 275±15cc of 20±5°C(68±9°F) water in a beaker which is graduated to 600 cc, and place the beaker on the center of the turntable.**
- **Set the energy leakage monitor to 2,450 MHz and use it following the manufacturer's recommended test procedure to assure correct result.**
- **When measuring the leakage, always use the 2-inch (5cm) spacer supplied with the probe.**
- **Operate the oven at its maximum output.**
- **Measure the microwave radiation using and electromagnetic radiation monitor by holding the probe perpendicular to the surface being measured**

Move probe along shaded area

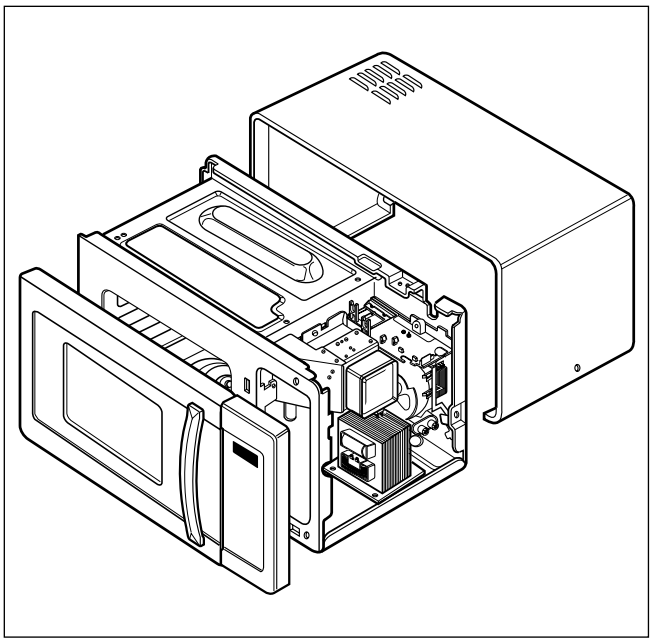
Probe scanning speed
Less than 2.5 cm/sec
(1in/sec)



MEASUREMENT WITH OUTER CASE REMOVED

• When you replace the magnetron, measure for microwave energy leakage before the outer case is installed and after all necessary components are replaced or adjusted.
Special care should be taken in measuring the following parts. (Circled area of below Fig.)
- Around the magnetron
- The waveguide

WARNING : AVOID CONTACTING ANY HIGH VOLTAGE PARTS



MEASUREMENT WITH A FULLY ASSEMBLED OVEN

• After all components, including the outer case, are fully assembled, measure for microwave energy leakage around the door viewing window, the exhaust opening, and air inlet openings.
• Microwave energy leakage must not exceed the values prescribed below.

NOTE: Leakage with the outer case removedless than 5 mW/cm.sq. Leakage for a fully assembled oven (Before the latch switch (primary) is interrupted) with the door in a slightly opened position-less than 2 mW/cm.sq.

NOTES WHEN MEASURING

• Do not exceed meter full scale deflection.
• The test probe must be removed no faster than 1 inch/sec (2.5 cm/sec) along the shaded area, otherwise a false reading may result.
• The test probe must be held with the grip portion of the handle.
A false reading may result if the operator's hand is between the handle and the probe.
• When testing near a corner of the door, keep the probe perpendicular to the surface making sure the probe horizontally along the oven surface, this may possibly cause probe damage.

RECORD KEEPING AND NOTIFICATION AFTER MEASUREMENT

• After adjustment and repair of any microwave energy interruption or microwave energy blocking device, record the measured values for future reference. Also enter the information on the service invoice.
• The microwave energy leakage should not be more than 4 mW/cm.sq. after determining that all parts are in good condition, functioning properly and genuine replacement parts which are listed in this manual have been used.
• At least once a year, have the electromagnetic energy leakage monitor checked for calibration by its manufacturer.

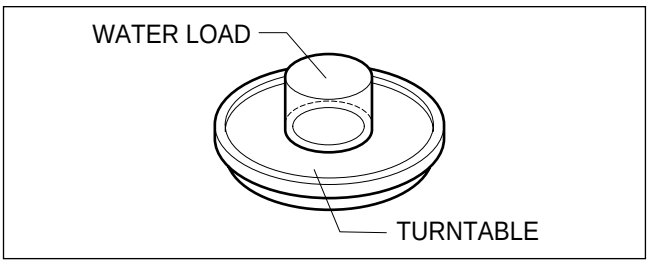
MEASUREMENT OF MICROWAVE POWER OUTPUT

- Microwave power output measurement is made with the microwave oven supplied at its rated voltage and operated at its maximum microwave power setting with a load of (1000±5) g of potable water.
- The water is contained in a cylindrical borosilicate glass vessel having a maximum material thickness of 3 mm and an outside diameter of approximately 190mm.
- The oven and the empty vessel are at ambient temperature prior to the start of the test.
- The initial temperature (T1) of the water is (10±2)°C It is measured immediately before the water is added to the vessel. After addition of the water to the vessel, the load is immediately placed on the center of the turntable which is in the lowest position and the microwave power switched on.
- The time T for the temperature of the water to rise by a value Δ T of (10±2)°K is measured, where T is the time in seconds and ΔT is the temperature rise. The initial and final water temperatures are selected so that the maximum difference between the final water temperature and the ambient temperature is 5°K.
- The microwave power output P in watts is calculated from the following formula :

$$P = \frac{4187 \times (\Delta T)}{T}$$

is measured while the microwave generator is operating at full power. Magnetron filament heat-up time is not included. (about 3 sec)

- The water is stirred to equalize temperature throughout the vessel, prior to measuring the final water temperature.
- Stirring devices and measuring instruments are selected in order to minimize addition or removal of heat.



DISASSEMBLY AND ADJUSTMENT

A. OUTER CASE REMOVAL

1) Disconnect the power supply cord from the outlet.
2) Remove the screws from the rear and along side edges of the case.
   The outer case must be moved backward to be lifted off.

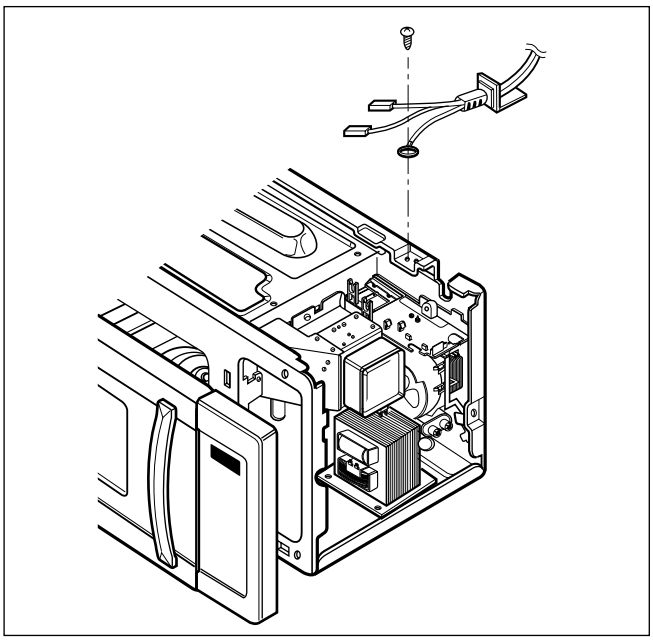
B. POWER SUPPLY CORD

1) Remove the outer case.
2) Disconnect two terminals, and remove one screw of the earth terminal.

CAUTION: DISCHARGE THE HIGH VOLTAGE CAPACITOR BEFORE SERVICING
(refer to page 2-1)

C. CONTROL PANEL ASSEMBLY

1) Disconnect the leadwire from the PCB SUB ASS'Y.
2) Remove the screws for the earth and securing the control panel.
3) Lift control panel ASS'Y from the oven by the tab unhooked.



D. DOOR GROSS ASSEMBLY REMOVAL

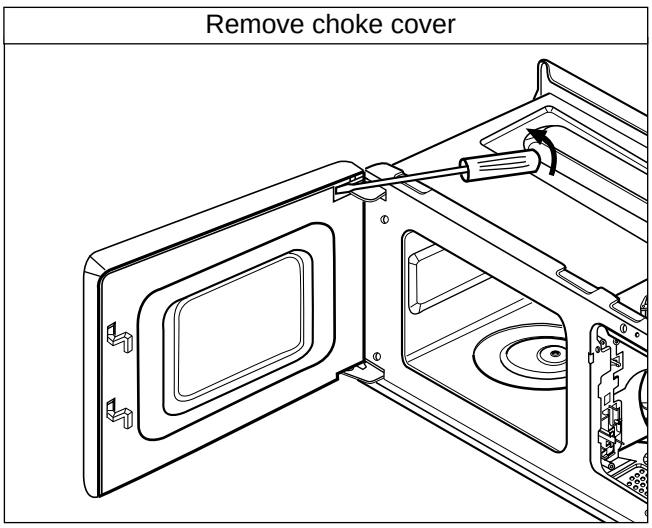
1) Open the door.
2) Remove the choke cover very carefully with a flat-blade screwdriver.

CAUTION : Be careful not to damage door seal plate by screwdriver.

3) Lift up and push the door.

NOTE:

1. After replacing the door, be sure to check that the primary switch, monitor switch, and secondary switch operate normally.
2. After replacing the door, check for microwave energy leakage with a survey meter. Microwave energy must be below the limit of 5 mW/cm. (with a 275 ml water load)
3. When mounting the door assembly to the oven assembly, be sure to adjust the door assembly parallel to the chassis. Also adjust so the door has no play between the inner door surface and oven frame assembly. If the door assembly is not mounted properly, microwaves may leak from the clearance between the door and the oven.



E. HIGH VOLTAGE TRANSFORMER REMOVAL

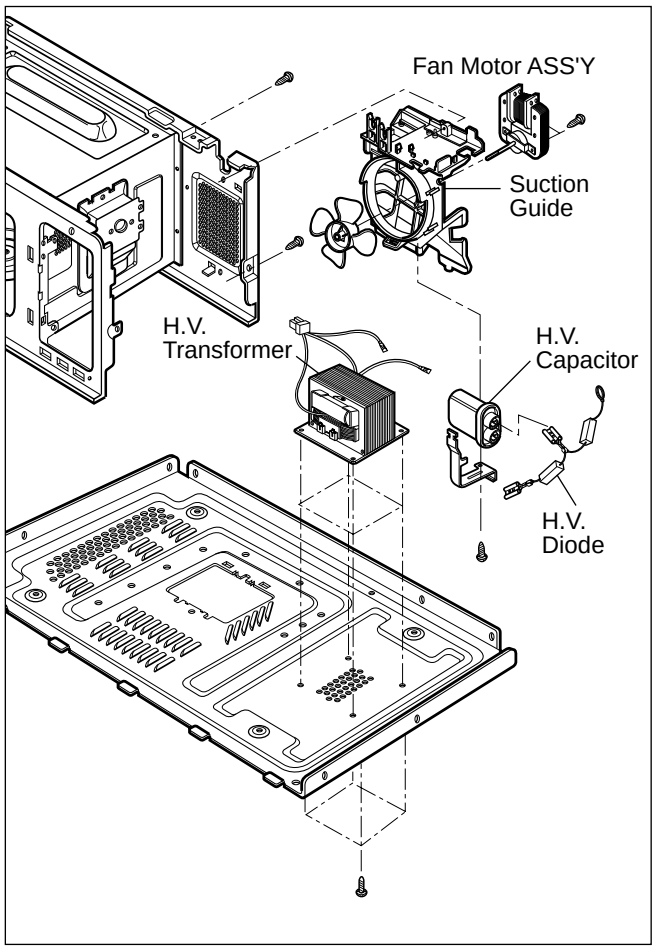
1) Discharge the high voltage capacitor.
2) Disconnect the leadwire from magnetron, high voltage transformer, and capacitor.
3) Remove the screw holding the high voltage transformer to the baseplate.

F. FAN MOTOR ASSEMBLY REMOVAL

1) Discharge the high voltage capacitor.
2) Disconnect the leadwire from fan motor, noise filter and high voltage capacitor.
3) Remove the two screws holding the the suction guide ASS'Y to the oven cavity and remove the high voltage diode earth screw.
4) Remove the screw of the capacitor bracket.
5) Remove the two screws holding the fan motor ASS'Y to the suction guide ASS'Y.

G. HIGH VOLTAGE CAPACITOR AND DIODE REMOVAL

1) Discharge the high voltage capacitor.
2) Disconnect the leadwire from fan motor, noise filter and high voltage capacitor.
3) Remove the screw holding the suction guide ASS'Y to the oven cavity and remove the high voltage diode earth screw.
4) Remove the screw holding the high voltage capacitor bracket.



H. AIR DUCT ASSEMBLY REMOVAL

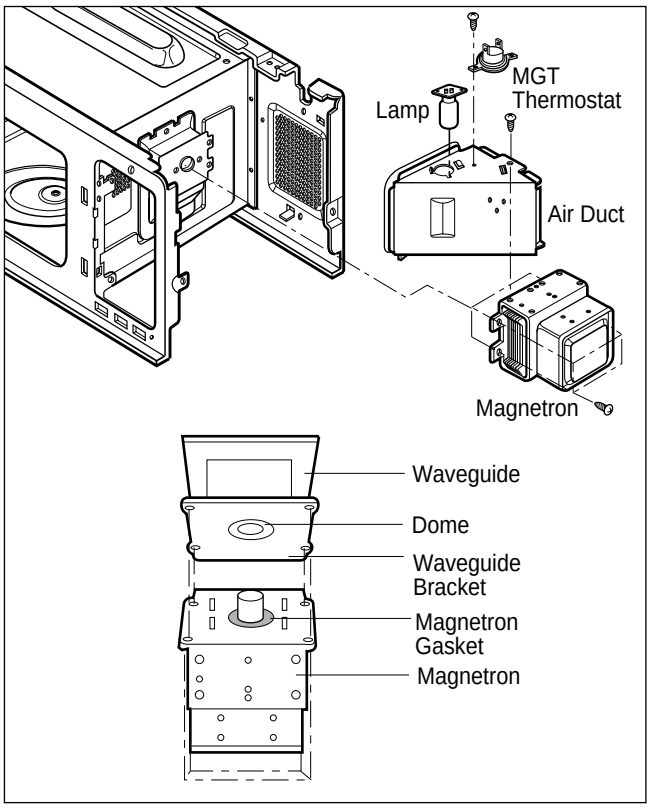
1) Disconnect the leadwire from lamp and MGT thermostat.
2) Remove the mounting screw to the magnetron.

I. MAGNETRON REMOVAL

1) Disconnect the leadwire from the high voltage transformer and high voltage capacitor.
2) Carefully remove the mounting screws holding the magnetron and the waveguide.
3) Remove the magnetron ASS'Y until the tube is clear from the waveguide.

NOTE:

1. When removing the magnetron, make sure its dome does not hit any adjacent parts, or it may be damaged.
2. When replacing the magnetron, be sure to install the magnetron gasket in the correct position and be sure that the gasket is in good condition.
3. After replacing the magnetron, check for microwave leakage with a survey meter around the magnetron. Microwave energy must be below the limit of 5 mW/cm^2. (With a 275 ml. water load). **Make sure that gasket is rigidly attached to the magnetron.** To prevent microwave leakage, tighten the mounting screws properly, making sure there is no gap between the waveguide and the magnetron.

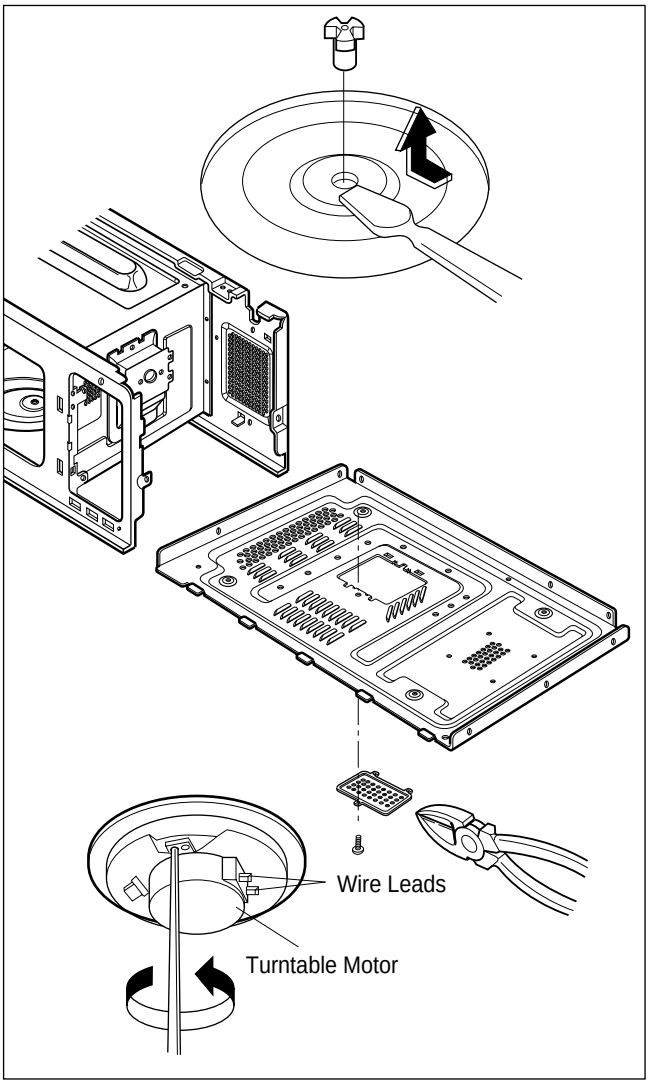


J. REMOVING THE TURNTABLE MOTOR

1) Remove the turntable.
2) Remove the turntable shaft VERY CAREFULLY with a slotted screwdriver.
3) Lay the unit down on its back.
4) Remove the turntable motor cover.
   The turntable base cover is easily removed by pinching the six parts with a wire cutting.
5) Disconnect the leadwire from the turntable motor terminals.
6) Remove the screw securing the turntable motor to the oven cavity ASS'Y
7) After repairing the motor, rotate the removed turntable motor cover.
8) Fit the turntable motor cover's projecting part to the base plate slit.

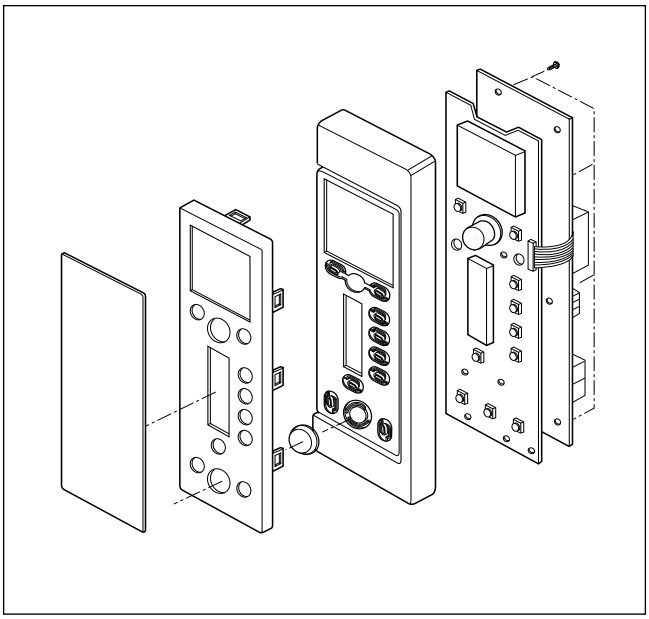
NOTE:

1. Remove the wire lead from the turntable motor VERY CAREFULLY.
2. Be sure to grasp the connector, not the wires, when removing.



K. PCB ASSEMBLY REMOVAL

1) Remove the control panel assembly from the cavity. (Refer to control panel assembly removal on previous page.)
2) Remove screws which hold the PCB SUB ASS'Y to the control panel.
3) Disconnect the flat cable from the PCB SUB ASS'Y and take off the PCB SUB ASS'Y.

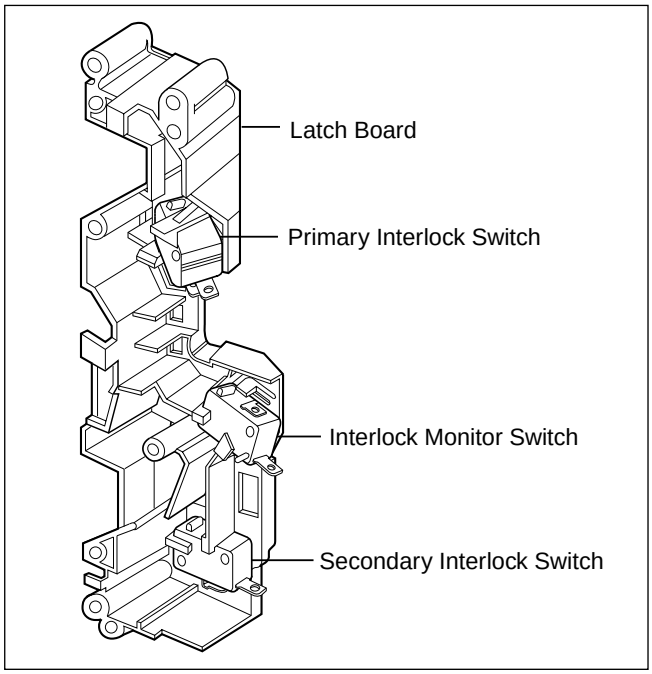


L. INTERLOCK SYSTEM

1) INTERLOCK MECHANISM

The door lock mechanism is a device which has been specially designed to eliminate completely microwave activity when the door is opened during cooking and thus to prevent the danger resulting from the microwave leakage.

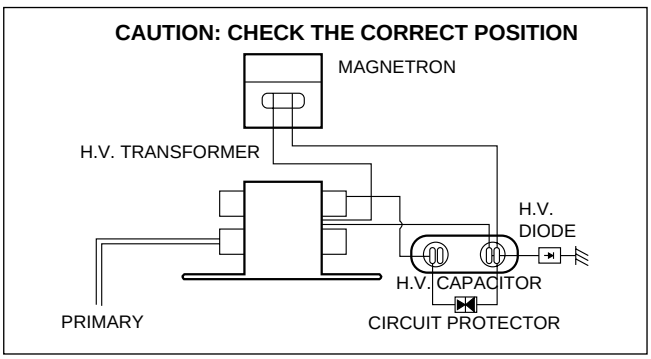
2) MOUNTING OF THE PRIMARY/MONITOR/ SECONDARY SWITCHES TO THE LATCH BOARD



3) INSTALLATION AND ADJUSTMENT OF THE LATCH BOARD TO THE OVEN ASSEMBLY

- Mount the latch board to the oven assembly.
- Adjust the latch board in the arrow direction so that oven door will not have any play in it when the door is closed.
- Tighten the mounting screw.
- **Check for play in the door by pushing the door release button. Door movement should be less than 0.5 mm. (1/64 inch)**

Don't push the door release button while making adjustment. Make sure that the latch moves smoothly after adjustment are completed and that the screws are tight. Make sure the primary, monitor, and secondary switches operate properly by following the continuity test procedure.



INTERLOCK CONTINUITY TEST

WARNING : FOR CONTINUED PROTECTION AGAINST EXCESSIVE RADIATION EMISSION, REPLACE ONLY WITH IDENTICAL REPLACEMENT PARTS.

TYPE NO. SZM-V 16-FA-63 OR VP-533A-OF FOR PRIMARY SWITCH
TYPE NO. SZM-V 16-FA-62 OR VP-532A-OF FOR MONITOR SWITCH
TYPE NO. SZM-V 16-FA-63 OR VP-533A-OF FOR SECONDARY SWITCH

A. PRIMARY INTERLOCK SWITCH TEST

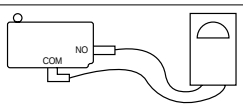
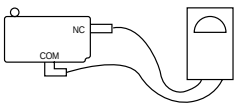
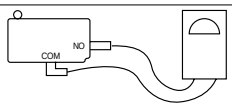
When the door release button is depressed slowly with the door closed, an audible **click** should be heard at the same time or successively at intervals. When the button is released slowly, the latches should activate the switches with an audible **click**.
If the latches do not activate the switches when the door is closed, the switches should be a adjusted in accordance with the adjustment procedure. Disconnect the wire lead from the primary switch. Connect the ohmmeter leads to the common (COM) and normally open (NO) terminal of the switch. The meter should indicate an open circuit in the door open condition. When the door is closed, the meter should indicate a closed circuit.
When the primary switch operation is abnormal, make the necessary adjustment or replace the switch only with the same type of switch.

B. SECONDARY INTERLOCK SWITCH TEST

Disconnect the wire lead from the secondary switch.
Connect the ohmmeter leads to the common (COM) and normally open (NO) terminals of the switch. The meter should indicate a open circuit in the door open condition. When the door is closed, meter should indicate an closed circuit. When the secondary switch operation is abnormal, make the necessary adjustment or replace the switch only with the same type of switch.

C. MONITOR SWITCH TEST

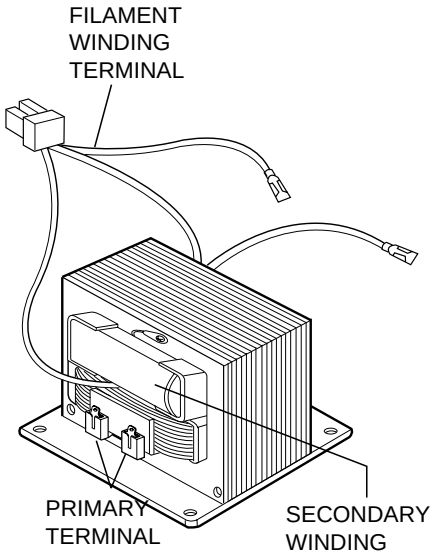
Disconnect the wire lead from the monitor switch. Connect the ohmmeter leads to the common (COM) and normally closed (NC) terminals of the switch. The meter should indicate closed circuit in the door open condition. When the door is closed, meter should indicate an open circuit. When the monitor switch operation is abnormal, replace with the same type of switch.
NOTE: After repairing the door or the interlock system, it is necessary to do this continuity test before operating the oven.

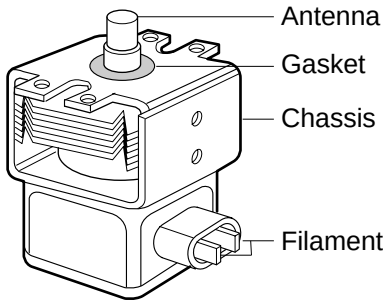
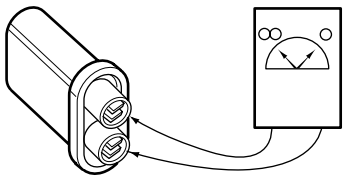
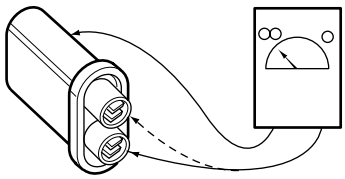
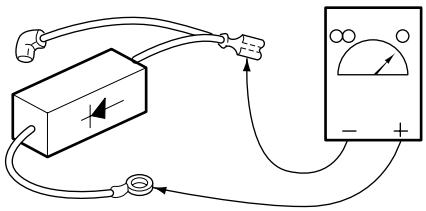
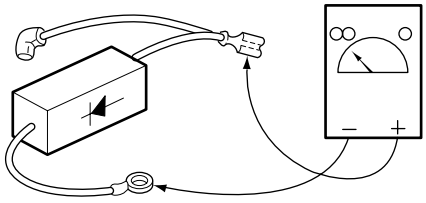
COMPONENTS	TEST PROCEDURE		RESULTS	
SWITCHES (Wire leads removed)	Check for continuity of the switch with an Ohm-meter		Door open	Door closed
	Primary Switch			
	Monitor Switch			
	Secondary Switch			
	NOTE : After checking for the continuity of switches, make sure that are connected correctly.			

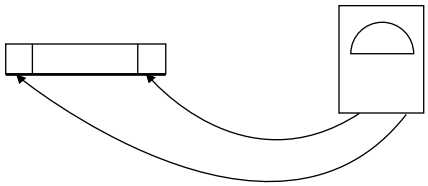
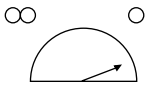
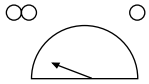
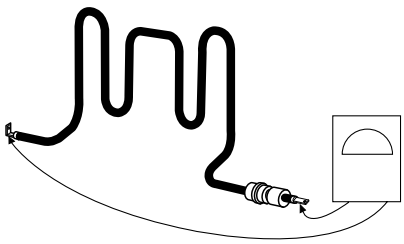
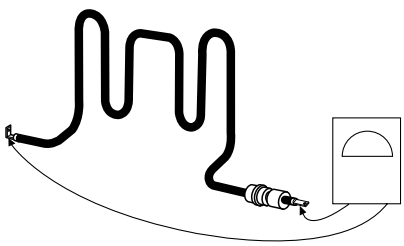
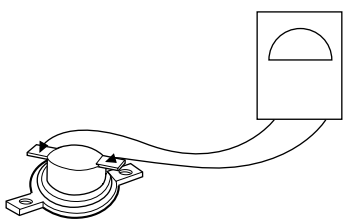
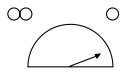
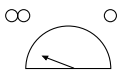
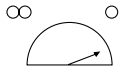
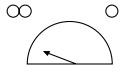
COMPONENT TEST PROCEDURE

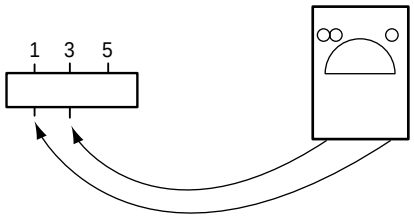
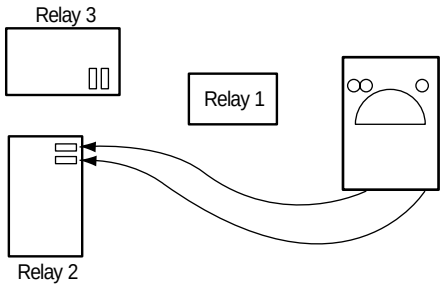
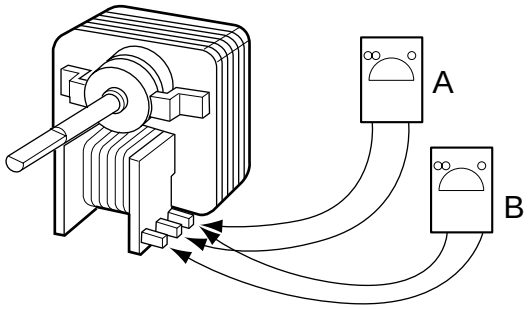
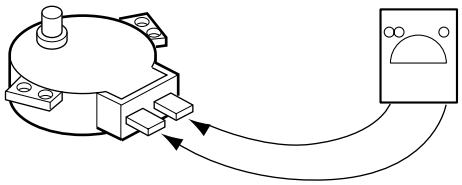
CAUTIONS

1. DISCONNECT THE POWER SUPPLY CORD FROM THE OUTLET WHENEVER REMOVING THE OUTER CASE FROM THE UNIT. PROCEED WITH THE TEST ONLY AFTER DISCHARGING THE HIGH VOLTAGE CAPACITOR AND REMOVING THE WIRE LEADS FROM THE PRIMARY WINDING OF THE HIGH VOLTAGE TRANSFORMER. (SEE PAGE 2-1)
2. ALL OPERATIONAL CHECKS WITH MICROWAVE ENERGY MUST BE DONE WITH A LOAD (1 LITER OF WATER IN CONTAINER) IN THE OVEN.

COMPONENTS	TEST PROCEDURE	RESULTS
HIGH VOLTAGE TRANSFORMER (Wire leads removed)	 1. Measure the resistance. (Ohm-meter scale: Rx1 and Rx100) • Primary winding • Secondary winding • Filament winding 2. Measure the resistance. (Ohm-meter scale: Rx1000) • Primary winding to ground • Filament winding to ground	 Approx.: 1.4 ohm Approx.: 90 ohm Less than: 1 ohm Normal: Infinite Normal: Infinite
MAGNETRON (Wire leads removed)	1. Measure the resistance. (Ohm-meter scale: Rx1) • Filament terminal 2. Measure the resistance. (Ohm-meter scale: Rx1000) • Filament to chassis	 Normal: Less than 1 ohm Normal: Infinite

COMPONENTS	TEST PROCEDURE	RESULTS
		
	NOTE: When testing the magnetron, be sure to install the magnetron gasket in the correct position and be sure that the gasket is in good condition.	
HIGH VOLTAGE CAPACITOR	Measure the resistance. (Ohm-meter scale: Rx1000) • Terminal to terminal. 	Normal: Momentarily indicates several ohms, and then gradually returns to infinite.
	Measure the resistance. (Ohm-meter scale: Rx1000) • Terminal to case. 	Normal: Infinite.
HIGH VOLTAGE DIODE NOTE : Some inexpensive meters may indicate infinite resistance in both direction.	Measure the continuity (Forward). (Ohm-meter scale: Rx10000) 	Normal: Continuity. Abnormal: Infinite.
	Measure the continuity (Reverse). (Ohm-meter scale: Rx10000) 	Normal: Infinite. Abnormal: Continuity.

COMPONENTS	TEST PROCEDURE	RESULTS	
FUSE	Check for continuity of the fuse with an multi-meter. 	Normal 	Abnormal 
	NOTE: If the fuse is blown, check the primary, the secondary, and the monitor switches, H.V.D. and H.V.C. before replacing the fuse. If the fuse is blown by improper switch operation replace the defective switch and the fuse at the same time. Replace just the fuse if the switches operate normally.		
HEATER ELEMENT (Wire leads removed.)	Measure the resistance. (Multi-meter scale: Rx1) 	Normal: *Grill heater Approx. 38 ohm (at 20 ~ 30°C)	
	Measure the resistance with 500V-100M ohm insulation resistance meter. 	Normal: more than 0.5 Mohm	
	NOTE: Make sure heater is fully cooled when tested.		
GRILL THERMOSTAT		0°C~Approx.90°C 	Approx.90°C 
OVEN THERMOSTAT MAGNETRON THERMOSTAT		0°C~Approx.145°C 	Approx.145°C 

<table>
<tr><th>COMPONENTS</th><th>TEST PROCEDURE</th><th colspan="2">RESULTS</th></tr>
<tr><td rowspan="2">Disconnect the 8 pin connector from P.C.B.
(Refer to schemetic diagram)</td><td rowspan="2">Check for P.C.B. connector.
 
</td><td>Cooking Start</td><td>OFF</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td rowspan="2">RELAY 2, RELAY 3
OF P.C.B.
(Wire leads removed.)
Note: Relay
Relay 1: Fan motor
Turntable motor
Oven lamp
Relay 2: Microwave
Relay 3: Grill</td><td rowspan="2"> 
</td><td>Cooking Start</td><td>OFF</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>FAN MOTOR
(Wire leads removed)</td><td>Measure the resistance.
(Ohm-meter scale: R x 1)
 
</td><td colspan="2">Normal: Approx. 200 ~400 ohm
<table><tr><td>A</td><td>Approx. 30 ~ 50 ohm</td></tr><tr><td>B</td><td>Approx. 300 ~ 500 ohm</td></tr></table>
Abnormal: Infinite or several ohm.</td></tr>
<tr><td>TURNTABLE
MOTOR
(Wire leads removed)</td><td>Measure the resistance.
(Ohm-meter scale: R x 1000)
  </td><td colspan="2">Normal: Approx. 10~20 kohm
Abnormal: Infinite or several ohm.</td></tr>
<tr><td colspan="4">NOTE : • A MICROWAVE LEAKAGE TEST MUST ALWAYS BE PERFORMED WHEN THE UNIT IS SERVICED FOR ANY REASON.
• MAKE SURE THE WIRE LEADS ARE IN THE CORRECT POSITION.
• WHEN REMOVING THE WIRE LEADS FROM THE PARTS, BE SURE TO GRASP THE CONNECTOR, NOT THE WIRES.</td></tr>
</table>

TROUBLE SHOOTING

WHEN YOU GET A COMPLAINT FROM YOUR CUSTOMER, EVALUATE THE COMPLAINT CAREFULLY. IF THE FOLLOWING SYMPTOMS APPLY, PLEASE INSTRUCT THE CUSTOMER IN THE PROPER USE OF THE MICROWAVE OVEN. THIS CAN ELIMINATE AN UNNECESSARY SERVICE CALL.

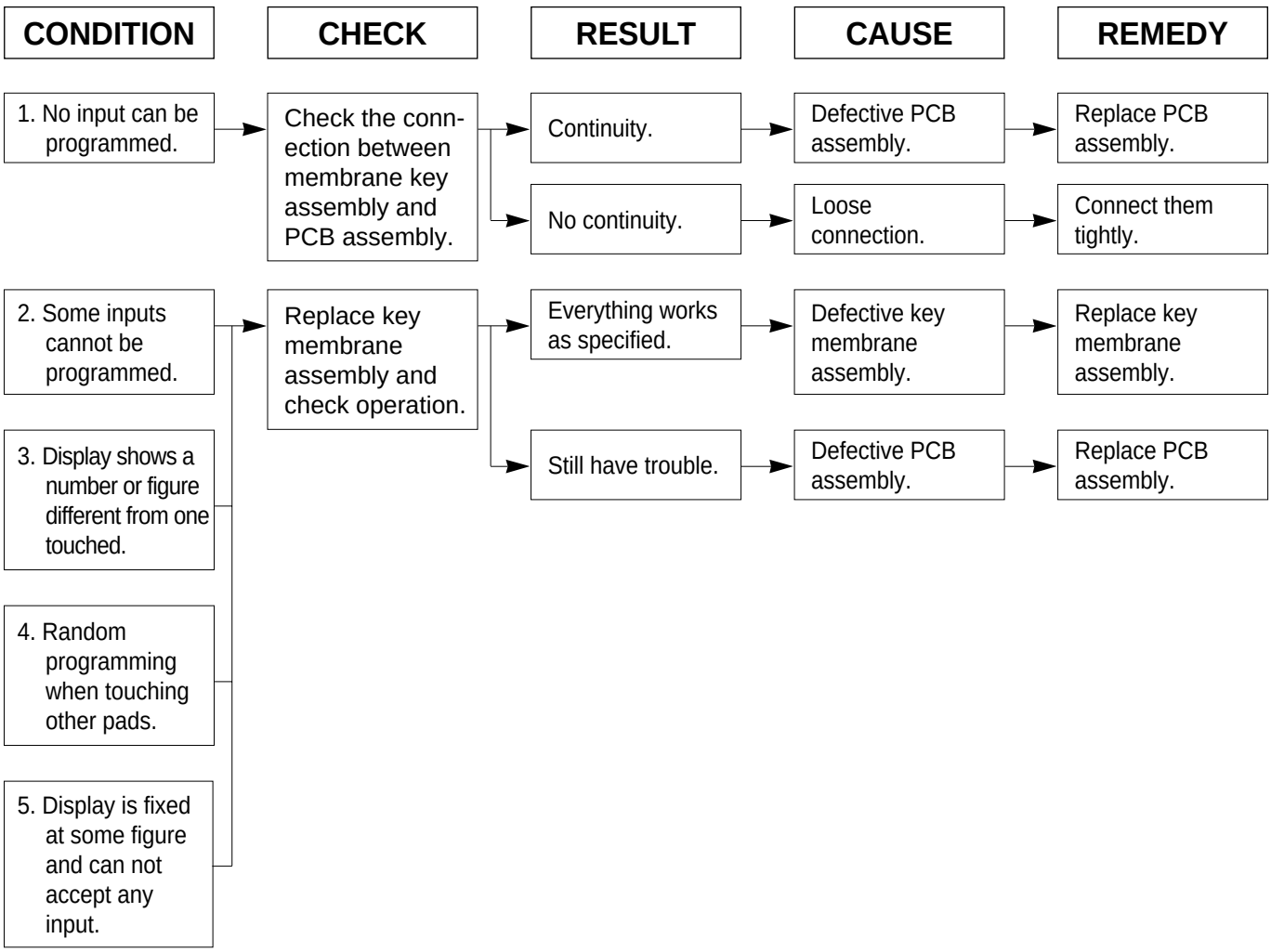
CAUTIONS

1. Check grounding before checking for trouble.
2. Be careful of the high voltage circuit.
3. Discharge the high voltage capacitor. (See page 2-1)
4. When checking the continuity of the switches or of the high voltage transformer, disconnect one lead wire from these parts and then check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter.
5. Do not touch any part of the circuitry on the digital programmer circuit since static electric discharge may damage this control panel.
   Always touch yourself ground while working on this panel to discharge any static charge built up in your body.

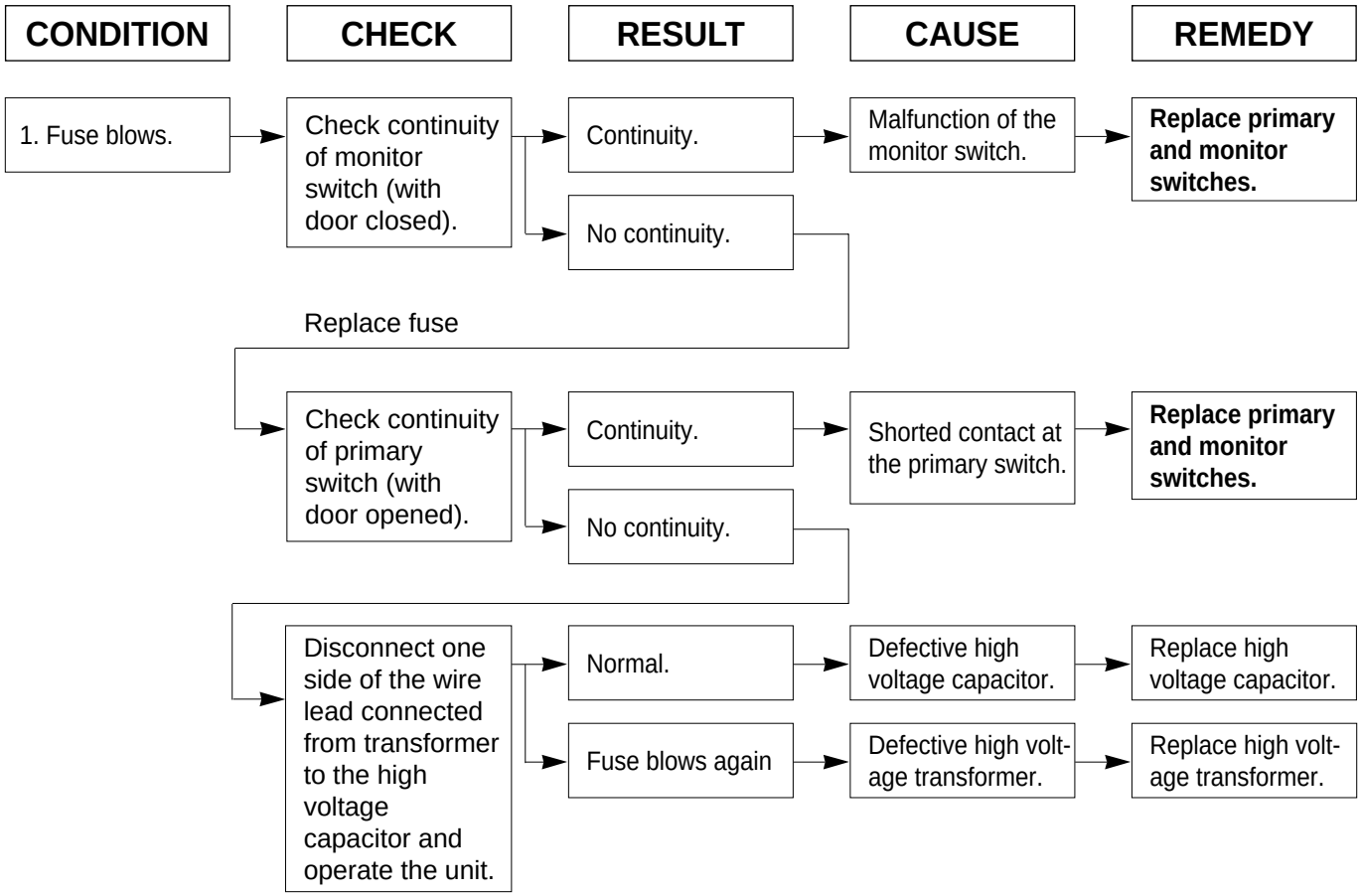
CONDITION	CAUSE	REMEDY
Microwave oven does not work.	Inserting many plug into one plug outlet and using them at the same time (causes overloading).	Avoid using other electrical appliances when you use the microwave oven.
	Microwave oven plug is not inserted tightly.	Insert microwave oven plug securely.
Output power is too low.	Low AC input voltage.	Use the microwave oven at adequate line voltage.
	Food temperature is too low.	This may not be a defect. It is possible that the food should be cooked for a longer time period.
Sparks occurring.	Using metallic ware and allowing it to touch the oven wall.	Do not use metallic ware for cooking except where noted in the cooking guide.
	Ceramic ware trimmed in gold or silver powder is used.	Do not use any type of cookware with metallic trimming.
Uneven cooking.	Inconsistent intensity of microwave by their characteristics.	1. Wrap the thinner part with aluminum foil. 2. Use plastic wrap or lid. 3. Stir once or twice while cooking soup, cocoa or milk, etc.

(TROUBLE 1) The following visual conditions indicate a probable defective control circuit.

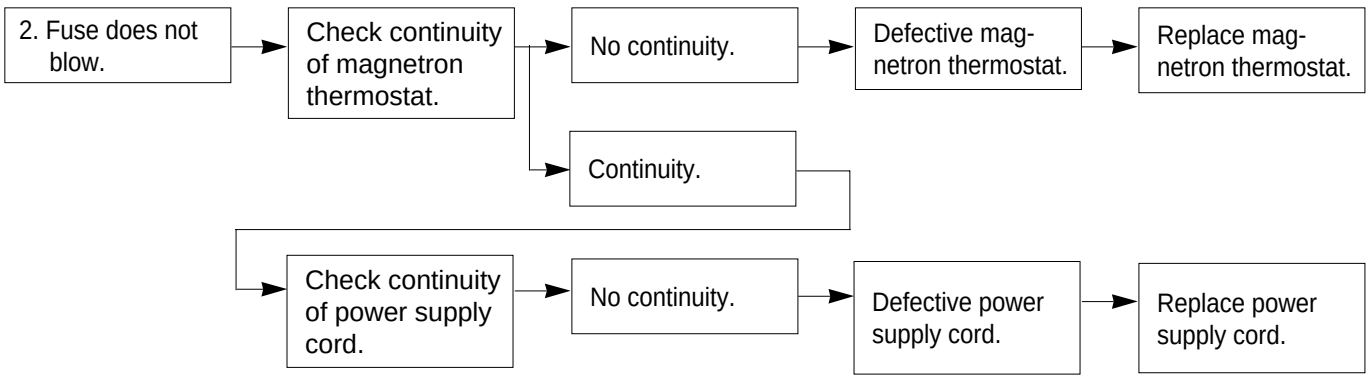
1. Incomplete segments.
   • Segment missing.
   • Partial segment missing.
   • Digit flickering (NOTE: Slight flickering is normal.)
2. Colon does not turn on or blink.
3. A distinct change in the brightness of one or more numbers in display.
4. One or more digits in the display are not lighting.
5. Display indicates a number different from one touched, for example, key in **5** and **3** appears in the display.
6. Specific numbers (for example 7 or 9) will not display when key pad is touched.
7. Display does not count down with time blinking or up with clock operation.
8. Display obviously jumps in time while counting down.
9. Display counts down too fast while cooking.
10. Each indicator light does not turn on after setting cooking cycle.
11. Display time of day does not reappear when cooking is finished.
12. Beep sound is not heard when correct key is touched.



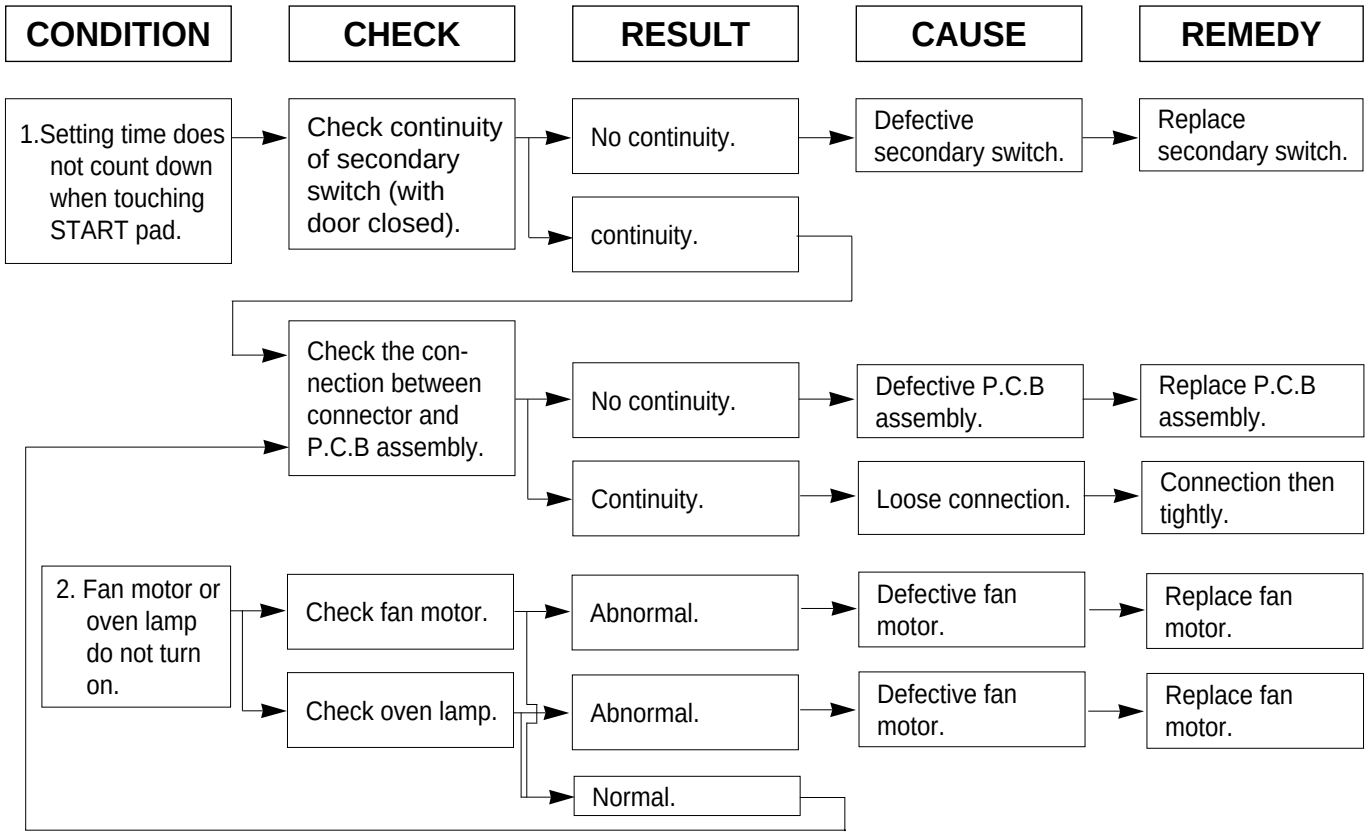
(TROUBLE 2) Oven does not operate at all ; Display window does not display any figures and no input is accepted.



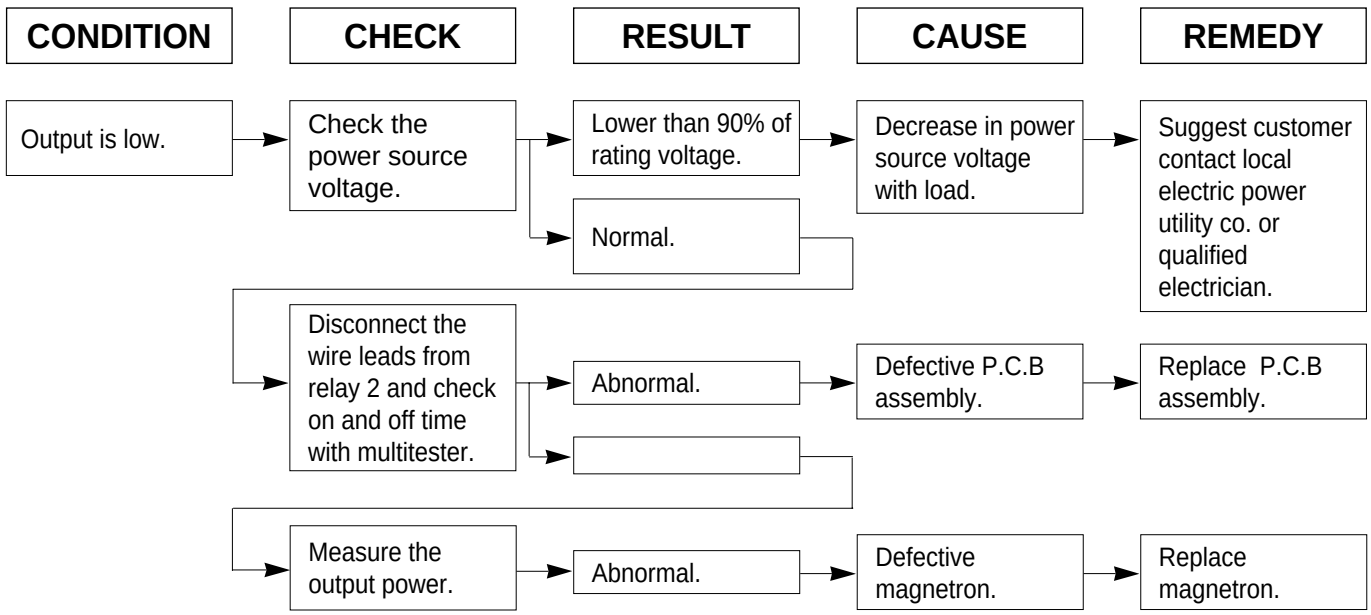
NOTE : All these switches must be replaced at the same time. Refer to page 5-6, 5-7



(TROUBLE 3) Display shows all figures set, but oven does not start cooking while desired program times are set and START pad is touched.

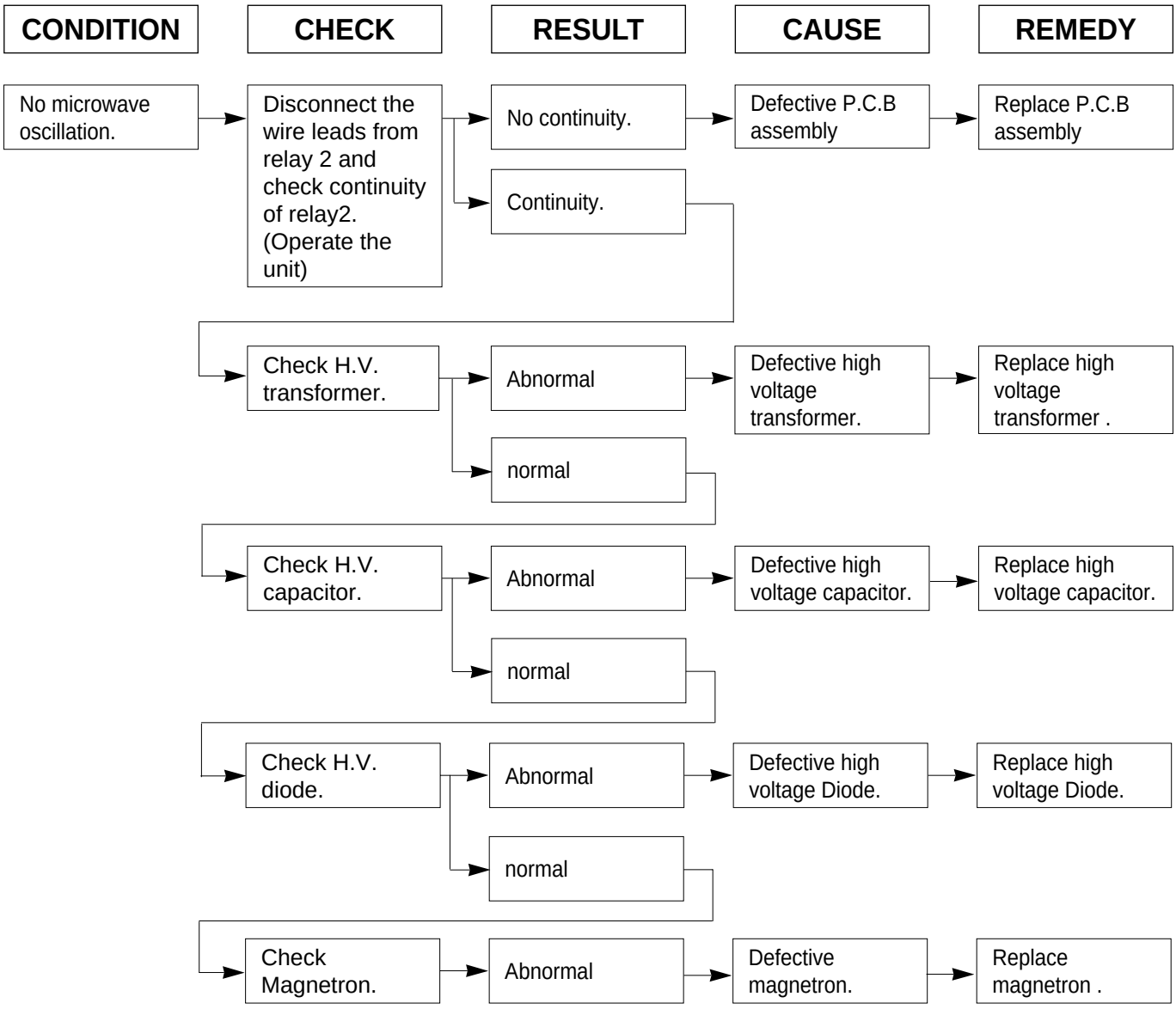


(TROUBLE 4) Oven seems to be operation but little heat is produced in oven load.



NOTE: Simple test of power output-conducted by heating one liter water for one min. if available.

(TROUBLE 5) No microwave oscillation even though oven lamp and fan motor run (Display operates properly)



(TROUBLE 6) Oven does not cook properly when programmed for the set power level (Operates properly on HIGH)

CONDITION	CHECK	RESULT	CAUSE	REMEDY
Output is full when you set lower power level.	Disconnect the wire leads from relay 2 and check continuity relay 2. (Operate the unit)	Abnormal.	Defective P.C.B. assembly.	Replace P.C.B. assembly.

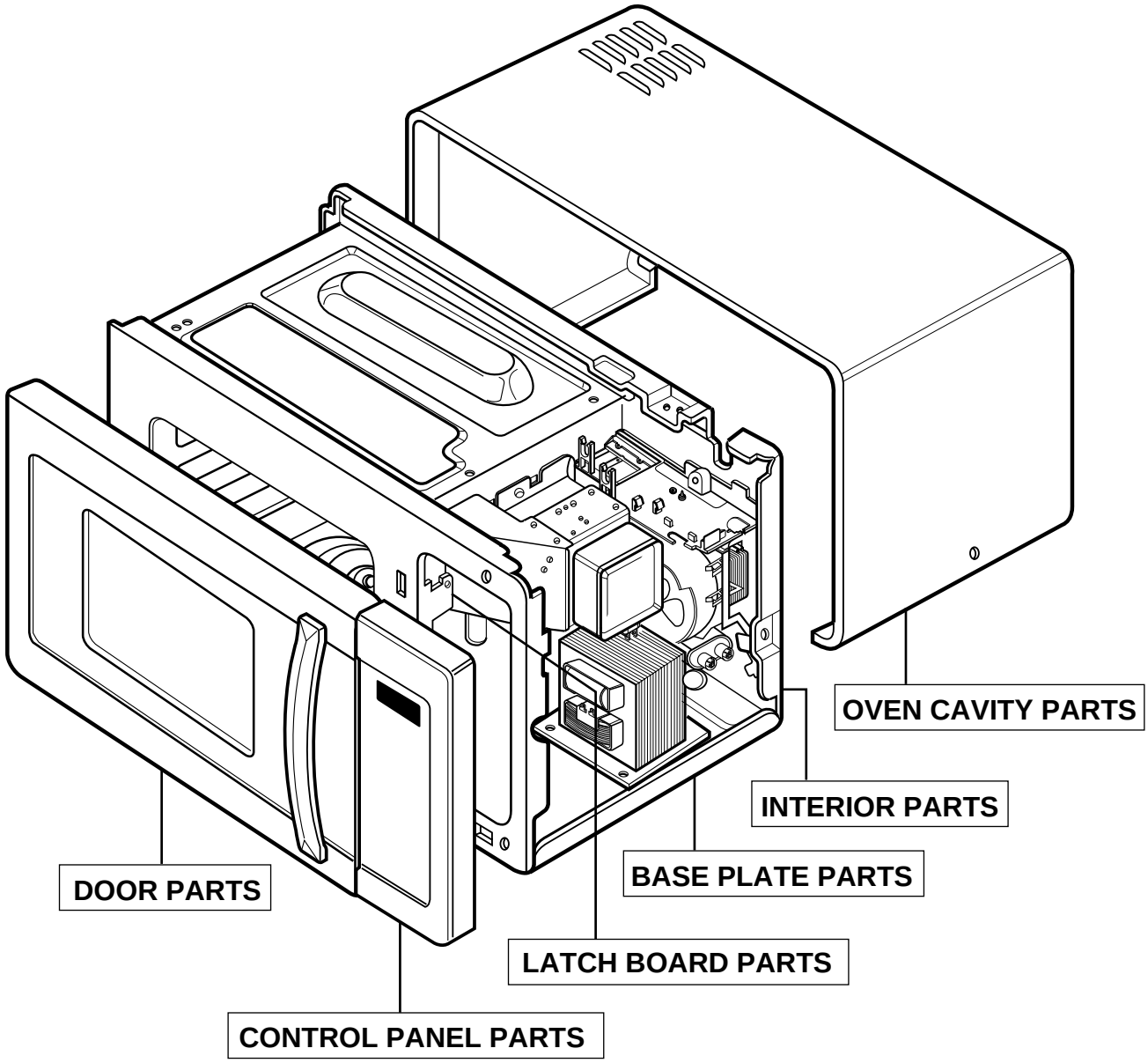
(TROUBLE 7) Grill

CONDITION	CHECK	RESULT	CAUSE	REMEDY
1. Heater is not operating.	Heater.	Abnormal.	Malfunction the heater.	Replace.
		Normal.		
	Thermostat and relay3.(Grill)	Abnormal.	Malfunction the thermostat.	Replace.
		Normal.		
	Wire connection.	No continuity.	Open or loosen.	Replace or connect tightly.
1. Lower temperature the oven.	Heater.	Abnormal.	Malfunction the heater.	Replace.
		Normal.		
	Thermostat and relay3.(Grill)	Abnormal.	Malfunction the thermostat.	Replace.

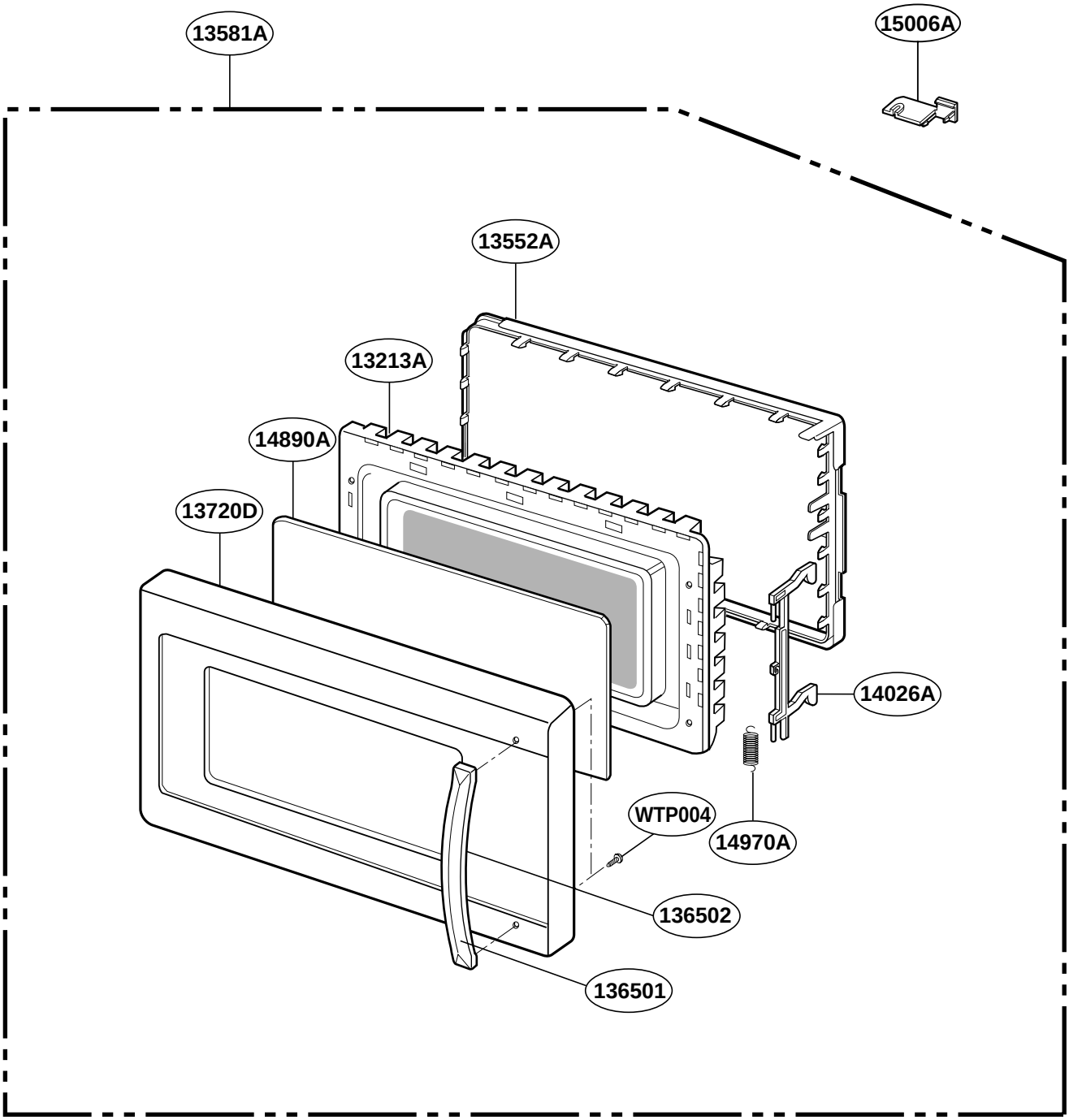
NOTE: * Make sure the wore leads correct position.
* When removing the wire leads from parts be sure to grasp the connector not the wires.
* When removing the magnetron, be sure to install the magnetron gasket in the correct position and in good condition.

EXPLODED VIEW

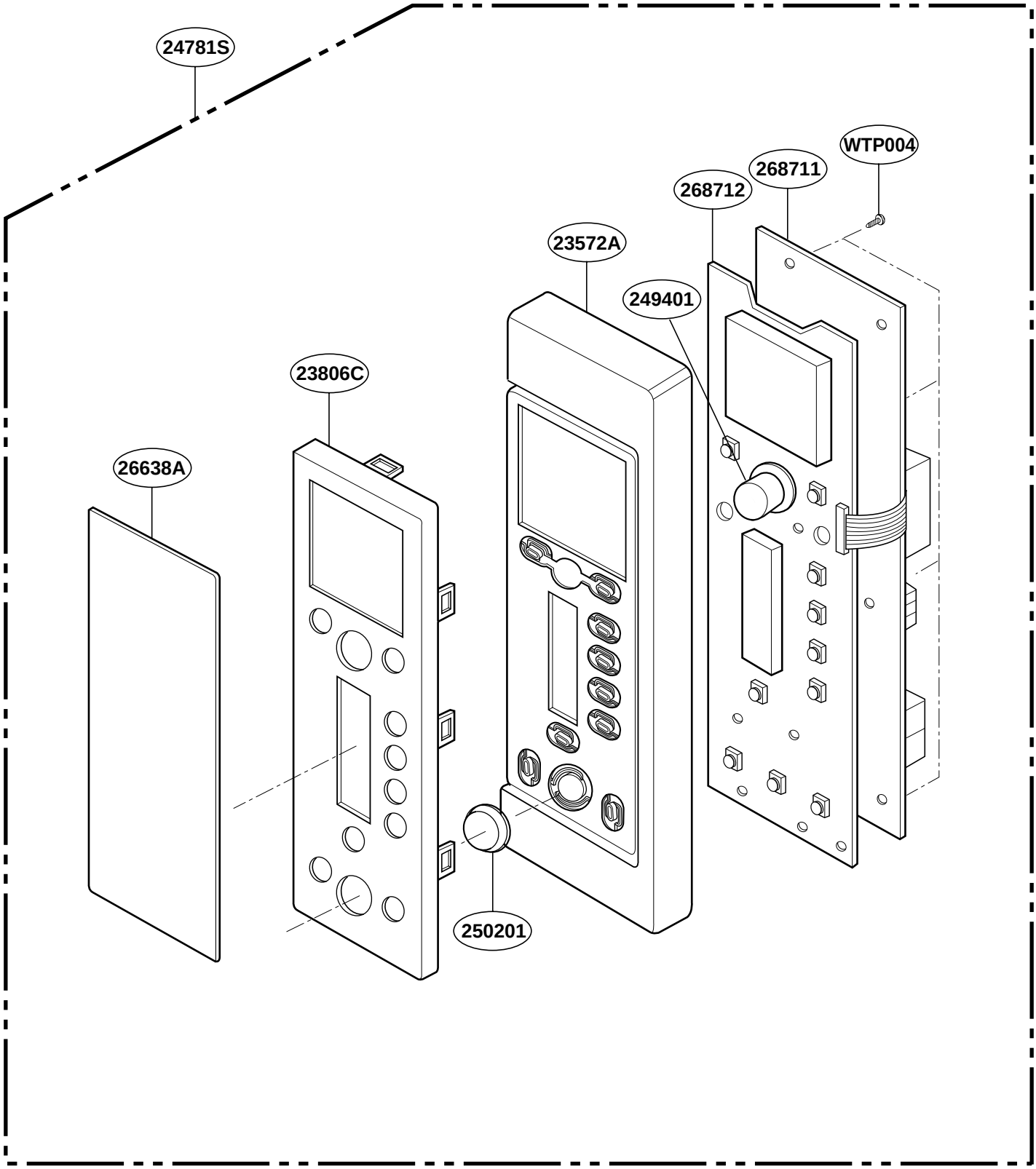
INTRODUCTION



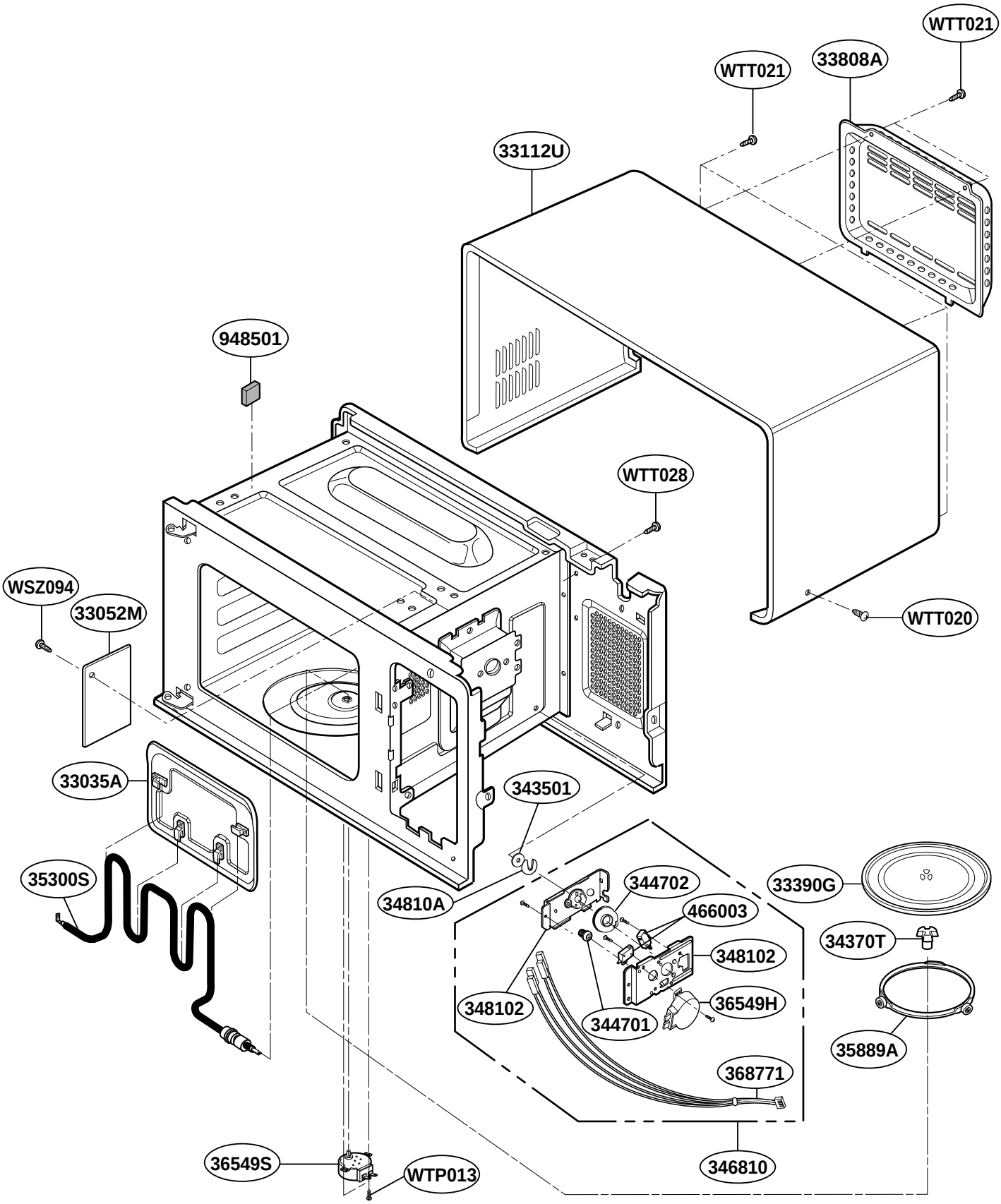
DOOR PARTS


13581A
15006A
13552A
13213A
14890A
13720D
14026A
WTP004
14970A
136502
136501

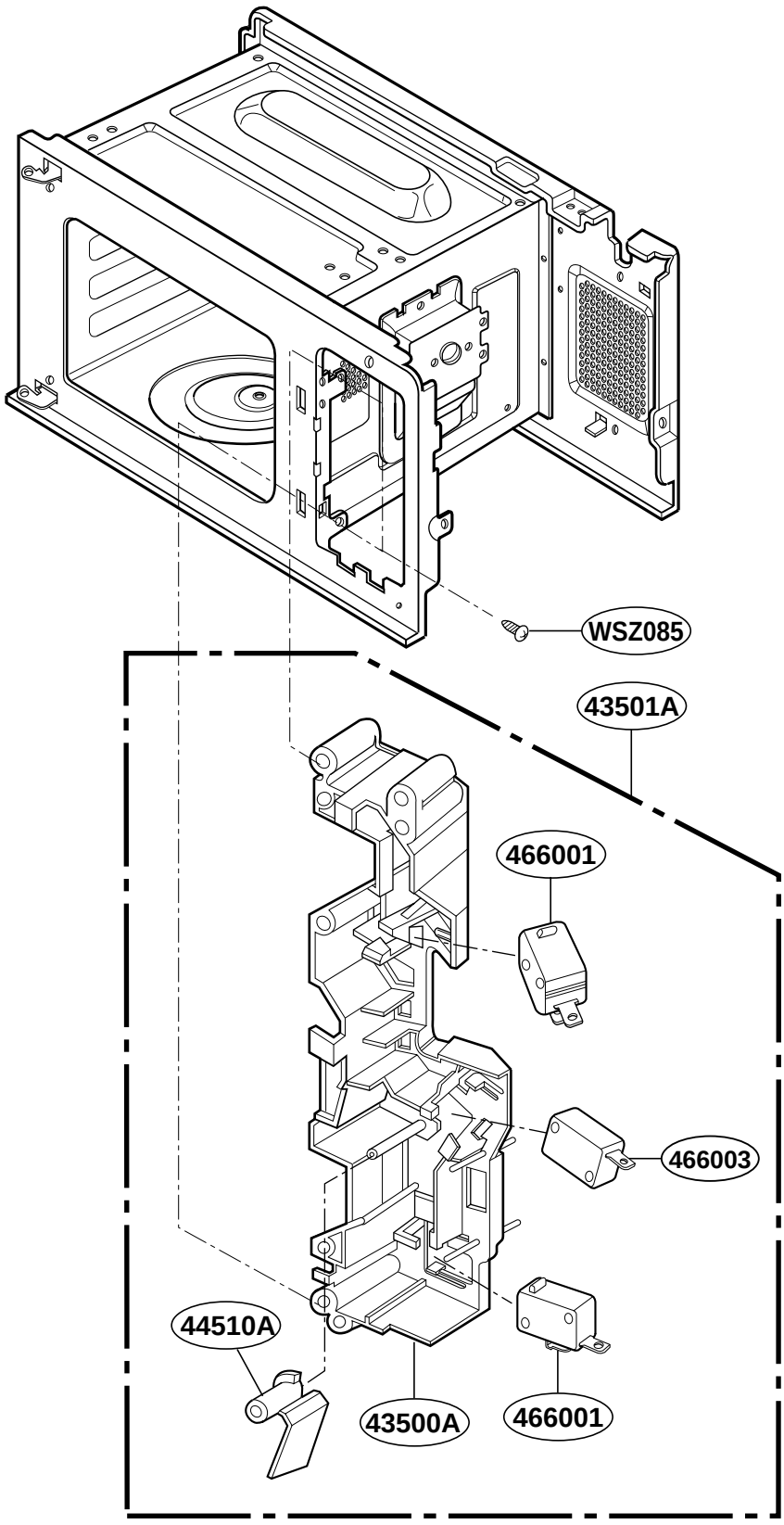
CONTROL PANEL PARTS



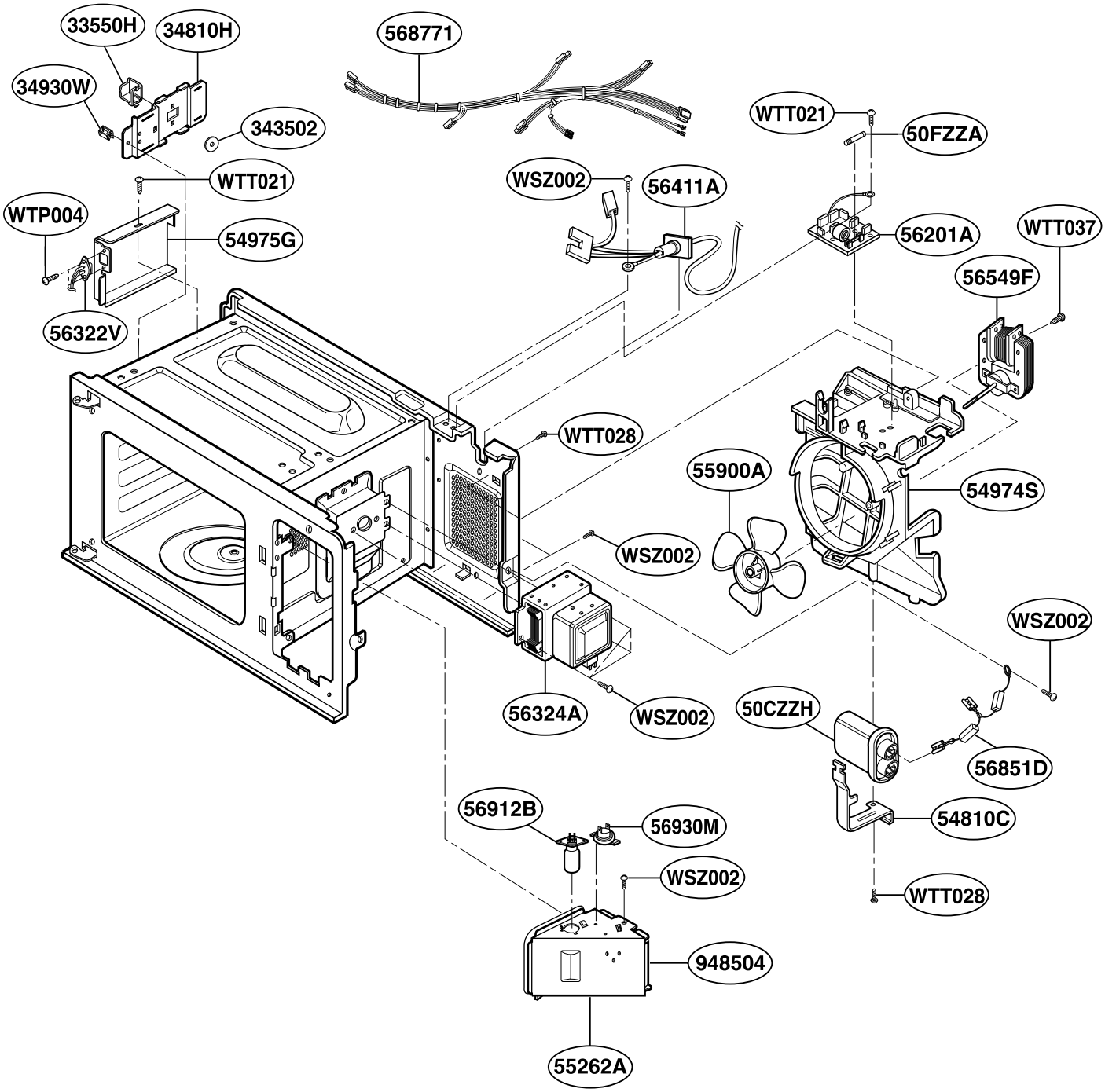
OVEN CAVITY PARTS



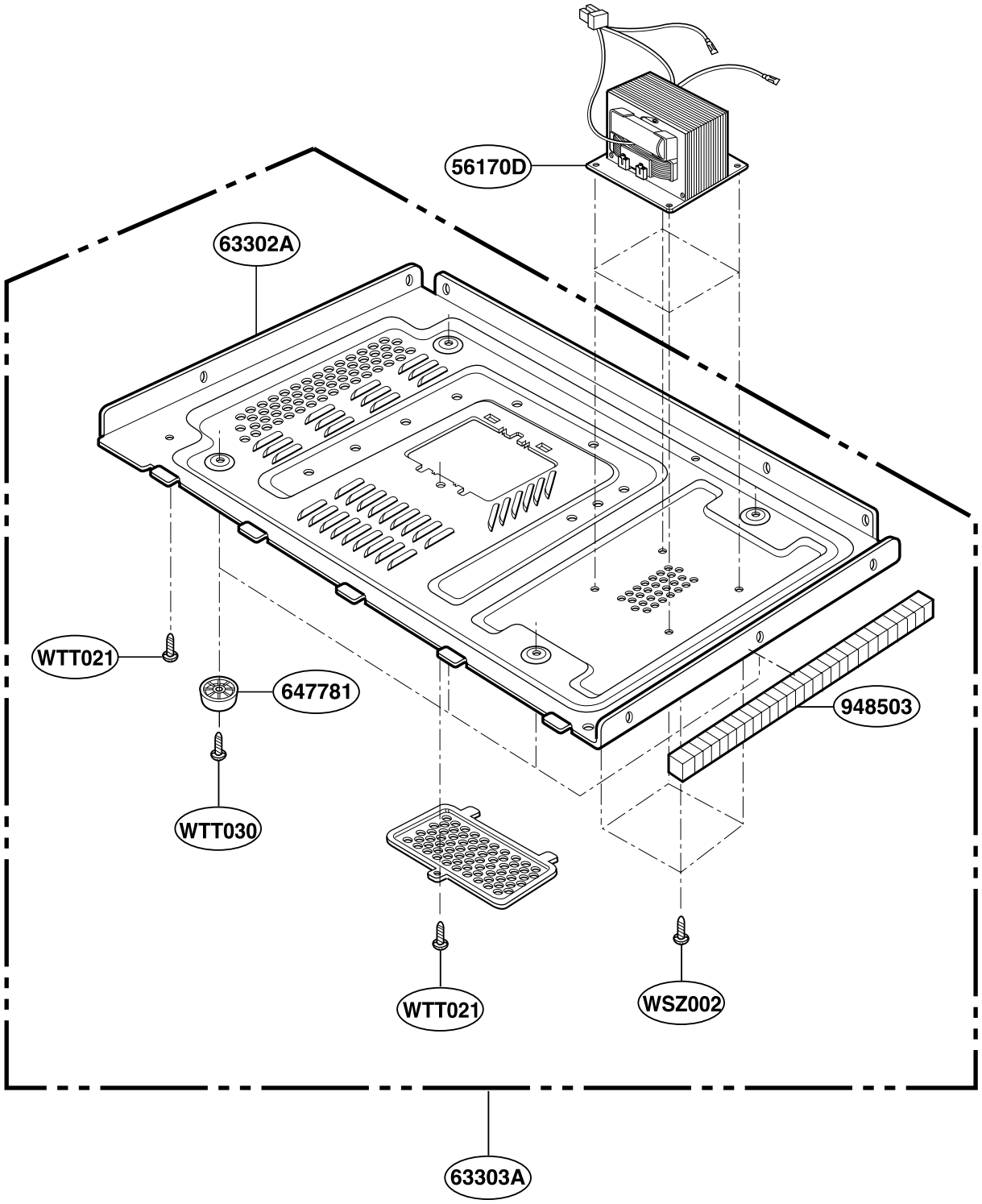
LATCH BOARD PARTS



INTERIOR PARTS



BASE PLATE PARTS



REPLACEMENT PARTS LIST

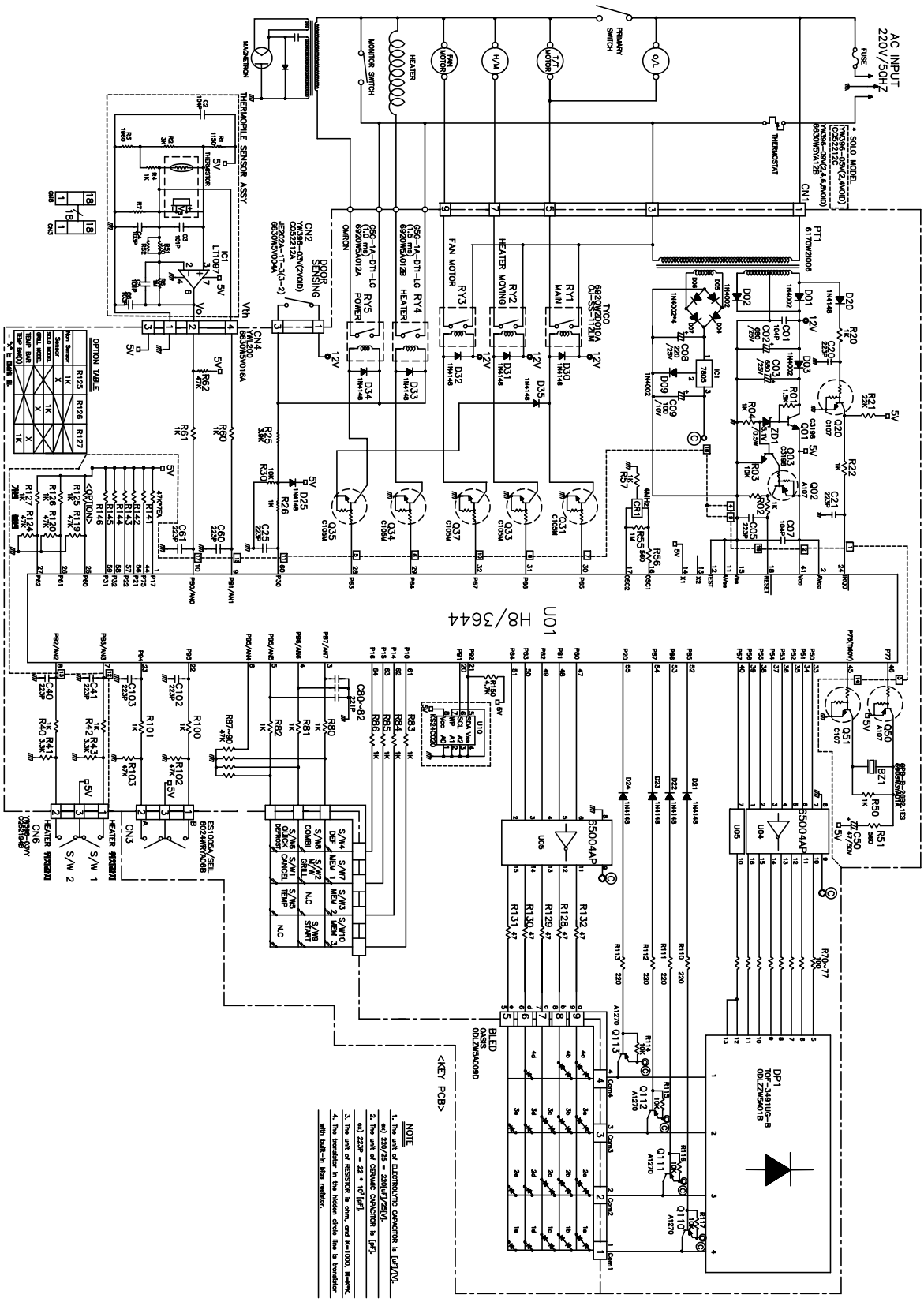
LOC. NO.	PART NO.	DESCRIPTION	SVC	ALTER	VENDOR
13213A	3213W1A032L	DOOR FRAME ASSY	R		
13552A	3552W1A042A	CHOKE COVER	R		
13581A	3581W1A291B	DOOR ASSEMBLY	R		
136501	3650W2A029E	HANDLE,[DOOR HANDLE]	R		
136502	3650W2A030A	HANDLE,[DOOR HANDLE]	R		
13720D	3720W0D154H	PANEL,[DOOR]	R		
14026A	4026W2A015A	LATCH	R		
14890A	4890W1A006V	GLASS	R		
14970A	4970WRA001C	SPRING	R		
15006A	5006W3A017A	CAP,[CHOKE COVER]	R		
23572A	3572W0A178D	CONTROL PANEL	R		
23806C	3806W1A008B	DECO,[CONTROL PANEL DECO]	R		
24781S	4781W1S070U	CONTROLLER ASSEMBLY,[SEMI MICOM]	R		
249401	4940W3A008B	KNOB	R		
250201	5020W3A119K	BUTTON	R		
268711	6871W2S226B	PWB(PCB) ASSEMBLY,[MAIN]	R		
268712	6871W2S227B	PWB(PCB) ASSEMBLY,[KEY]	R		
33052M	3052W3M011C	CANOPY,[MICA]	R		
33112U	3112W2U006F	OUT CASE,[U-BENDING]	R		
33390G	3390W1G012A	TRAY,[GLASS]	R	3390W1G010A	
33550H	3550W3A094A	COVER,[HEATER COVER]	R		
33808A	3808W1A001A	COVER,[BACK COVER]	R		
343502	4350W4A007H	GASKET	R		
34370T	3B72373A	SHAFT,[TURN TABLE SHAFT]	R		
344701	4470W3A007A	GEAR	R		
344702	4470W3A008A	GEAR	R		
348102	4810W2G053A	BRACKET,[MWO]	R		
34810A	4810W3G130A	BRACKET,[MWO]	R		
34930W	4B72944B	HOLDER,[WIRE HOLDER]	R		
33035A	3035W1A004A	REFLECTOR ASSY	R		
35300S	5300W1S008D	HEATER,[SHEATH]	R		
35889A	5889W2A005J	ROTATING RING ASSEMBLY	R		
36549H	6549WRS001H	MOTOR(CIRC),SYNCHRONOUS	R		
36549S	6549W1S003A	MOTOR(CIRC),SYNCHRONOUS	R	6549W1S004A	
368771	6877W3A017C	HARNESS	R		
43500A	3500W1A005A	BOARD,[LATCH BOARD]	R		
43501A	3501W1A016K	BOARD ASSY,LATCH	R		
44510A	4510W4A005A	LEVER	R		
466001	3B73362A	SWITCH,MICRO	R		
466001	3B73362F	SWITCH,MICRO	R	3B73362E	
466003	3B73361E	SWITCH,MICRO	R	6600W1K004B	
50CZZH	0CZZW1H002J	CAPACITOR,DRAWING[HIGH VOLTAGE]	R	6120W3H002C	
50FZZA	3B70856T	FUSE,DRAWING	R		
54810C	4810W3C004A	BRACKET,[CAPACITOR]	R		
54811A	4811W2A017B	BRACKET ASSEMBLY	R		
54974S	4974W1S057A	GUIDE,[SUCTION GUIDE]	R		
54975G	4975W2S024V	GUIDE ASSEMBLY,[SUCTION]	R		
55262A	5262W2A037B	DUCT	R		
55900A	2B72125A	FAN	R		

R : SERVICE PARTS

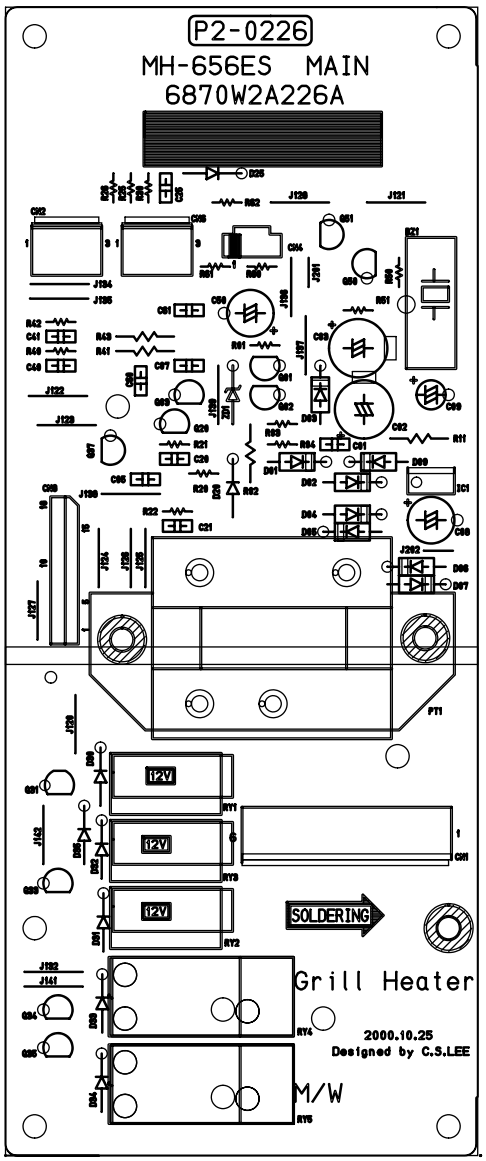
LOC. NO.	PART NO.	DESCRIPTION	SVC	ALTER	VENDOR
56170D	6170W1D029C	TRANSFORMER,HIGH VOLTAGE	R		
56201A	6201W2A021E	FILTER ASSEMBLY(CIRC)	R		
56324A	2B71732B	MAGNETRON	R		
56411A	6411W1A001G	POWER CORD ASSY	R		
56549F	6549W1F005A	MOTOR(CIRC),FAN	R	6549W1F007A	
56851D	6851W1A001A	CABLE ASSEMBLY	R		
568771	6877W1A341A	HARNESS	R		
56912B	6912W3B002D	LAMP,DRAWING	R		
56930M	6930WRT003B	THERMOSTAT	R	6930WRT004B	
56930V	6930W1A001F	THERMOSTAT	R	6930WRT001B	
63302A	3302W1A026E	BASE PLATE	R		
63303A	3303W1A013K	BASE PLATE ASSY	R		
647781	4B73900A	LEG	R		
*01	3828W5A2130	MANUAL,[OWNERS]MWO	R		
*02	3828W5S1990	MANUAL,[SERVICE]	R		
948501	4850W4C001Q	CUSHION	R		
948503	3B72244G	CUSHION	R		
948504	3B72244T	CUSHION	R		
WSZ002	1SBF0402418	SCREW TAP TITE(S),BINDING HEAD	R		
WSZ085	4B70188C	SCREW,DRAWING	R		
WSZ094	4B70572D	SCREW,DRAWING	R		
WTP004	1TPL0302418	SCREW TAPPING,PAN HEAD	R		
WTP007	1TPL0303018	SCREW TAPPING,PAN HEAD	R		
WTP013	1TPL0402418	SCREW TAPPING,PAN HEAD	R		
WTT020	1TTL0402416	SCREW TAPPING,TRUSS HEAD	R		
WTT021	1TTL0402418	SCREW TAPPING,TRUSS HEAD	R		
WTT024	1TTL0402618	SCREW TAPPING,TRUSS HEAD	R		
WTT028	1TTL0402818	SCREW TAPPING,TRUSS HEAD	R		
WTT030	1TTL0402818	SCREW TAPPING,TRUSS HEAD	R		
WTT037	1TTL0403818	SCREW TAPPING,TRUSS HEAD	R		

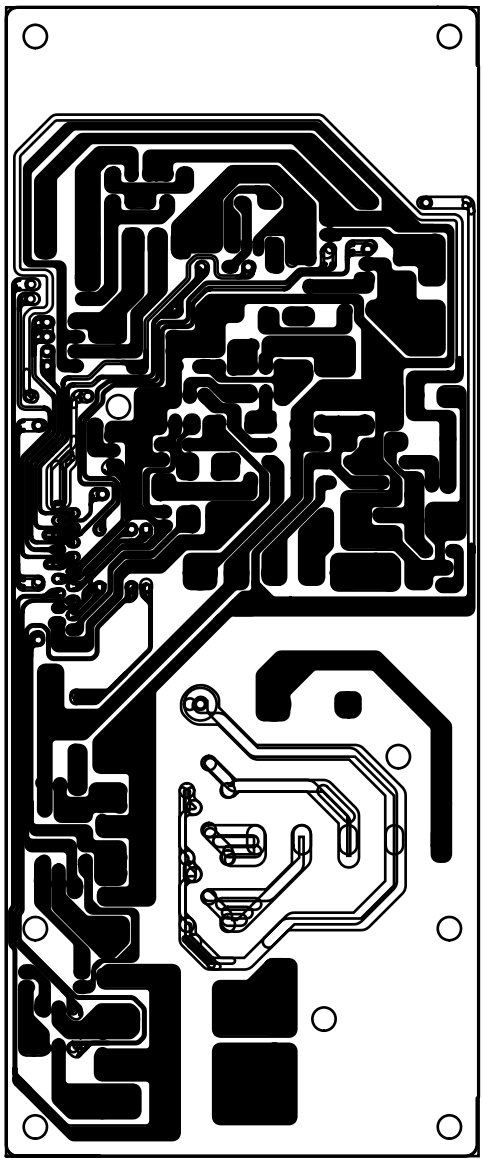
R : SERVICE PARTS

SCHEMATIC DIAGRAM OF P.C.B



PRINTED CIRCUIT BOARD





P.C.B. PARTS LIST

LOC. NO.	PART NO	DESCRPTION	SPECIFICATION	SVC	ALTER	VEND
BLED	0DLZW5A009D	LED	OASIS TOA-B11CEYG-B2-D BK YELLOW-GREEN 1	R		
BZ1	6908W3YA01A	BUZZER	GPB-B-26B2 SUNJIN 1ES(EXTERNAL) NONE	R		
C01	0CK1040H518	CAPACITOR,FIXED CERAMIC(High dielectric)	0.1UF D 25V 10% B(Y5P) TA26	R		
C02	0CE6871H618	CAPACITOR,FIXED ELECTROLYTIC	680000000PF SM,SA 25V 20% FL TP 5	R		
C03	0CE6871H618	CAPACITOR,FIXED ELECTROLYTIC	680000000PF SM,SA 25V 20% FL TP 5	R		
C05	0CK2230H518	CAPACITOR,FIXED CERAMIC(High dielectric)	0.022UF D 25V 10% B(Y5P) TA26	R		
C07	0CK1040H518	CAPACITOR,FIXED CERAMIC(High dielectric)	0.1UF D 25V 10% B(Y5P) TA26	R		
C08	0CE2272H638	CAPACITOR,FIXED ELECTROLYTIC	220UF SME,SQ 25V 20% FM5 TP 5	R		
C09	0CE1071D638	CAPACITOR,FIXED ELECTROLYTIC	100UF SM,SA 10V 20% FM5 TP 5	R		
C102	0CK2230H518	CAPACITOR,FIXED CERAMIC(High dielectric)	0.022UF D 25V 10% B(Y5P) TA26	R		
C103	0CK2230H518	CAPACITOR,FIXED CERAMIC(High dielectric)	0.022UF D 25V 10% B(Y5P) TA26	R		
C20	0CK2230H518	CAPACITOR,FIXED CERAMIC(High dielectric)	0.022UF D 25V 10% B(Y5P) TA26	R		
C21	0CK2230H518	CAPACITOR,FIXED CERAMIC(High dielectric)	0.022UF D 25V 10% B(Y5P) TA26	R		
C25	0CK2230H518	CAPACITOR,FIXED CERAMIC(High dielectric)	0.022UF D 25V 10% B(Y5P) TA26	R		
C40	0CK2230H518	CAPACITOR,FIXED CERAMIC(High dielectric)	0.022UF D 25V 10% B(Y5P) TA26	R		
C41	0CK2230H518	CAPACITOR,FIXED CERAMIC(High dielectric)	0.022UF D 25V 10% B(Y5P) TA26	R		
C50	0CE4761K638	CAPACITOR,FIXED ELECTROLYTIC	47UF SM,SA 50V 20% FM5 TP 5	R		
C80	0CK2210K518	CAPACITOR,FIXED CERAMIC(High dielectric)	220PF D 50V 10% B(Y5P) TA26	R		
C81	0CK2210K518	CAPACITOR,FIXED CERAMIC(High dielectric)	220PF D 50V 10% B(Y5P) TA26	R		
C82	0CK2210K518	CAPACITOR,FIXED CERAMIC(High dielectric)	220PF D 50V 10% B(Y5P) TA26	R		
CN1	6630W5V012B	CONNECTOR (CIRC),WAFER	YW396-9AV(2,4,6,8VOID) YEONHO 9 3.96 VOI	R		
CN2	CQ52212A	CONNECTOR (CIRC),WAFER	YW396-03,#2 VOID YEON HO 3 3.96 VOID	R		
CN6	CQ52194B	CONNECTOR (CIRC),WAFER	YW396-03VY YEON HO 3 3.96 W_YELLOW	R		
CN8	6630W5V014C	CONNECTOR (CIRC),WAFER	51580 YEONHO 18 1.25 WAFER	R		
CR1	6212W5M002A	RESONATOR,CRYSTAL	CSTS0400 MURATA 4MHZ °æ0.5% 15PF TP NONE	R		
D01	0DD400209AA	DIODE,RECTIFIERS	1N4002 PNONEC TP26 DONONE41 100V NONE 30	R		
D02	0DD400209AA	DIODE,RECTIFIERS	1N4002 PNONEC TP26 DONONE41 100V NONE 30	R		
D03	0DD400209AA	DIODE,RECTIFIERS	1N4002 PNONEC TP26 DONONE41 100V NONE 30	R		
D04	0DD400209AA	DIODE,RECTIFIERS	1N4002 PNONEC TP26 DONONE41 100V NONE 30	R		
D05	0DD400209AA	DIODE,RECTIFIERS	1N4002 PNONEC TP26 DONONE41 100V NONE 30	R		
D06	0DD400209AA	DIODE,RECTIFIERS	1N4002 PNONEC TP26 DONONE41 100V NONE 30	R		
D07	0DD400209AA	DIODE,RECTIFIERS	1N4002 PNONEC TP26 DONONE41 100V NONE 30	R		
D09	0DD400209AA	DIODE,RECTIFIERS	1N4002 PNONEC TP26 DONONE41 100V NONE 30	R		
D20	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
D21	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
D22	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
D23	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
D24	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
D25	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
D30	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
D31	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
D32	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
D33	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
D34	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
D35	0DD414809AB	DIODE	1N4148M ROHM TP26 DONONE34 100V 450mA 2A	R		
DP1	0DLZZW5A01B	LED	TOF-3491HG-B BK OASIS GREEN TOF-3491HG-B	R		
EN1	6024W5A0006	VOLUME,ROTARY	ALPS EC12E24204	R		
IC1	0IKE780500A	IC,KEC	KE7805 3SIP LIN - - - -	R		
PT1	6170W2G011H	TRANSFORMER,POWER	230V 50HZ 12V LGECW 006H	R		
Q01	0TR319809AA	TRANSISTOR,BIPOLARS	KTC3198 TP KEC - - -Y (KTC1815)	R		
Q02	0TR107009AE	TRANSISTOR,BIPOLARS	KRA107M TO-92M KEC	R		
Q03	0TR319809AA	TRANSISTOR,BIPOLARS	KTC3198 TP KEC - - -Y (KTC1815)	R		

R : SERVICE PARTS

LOC. NO.	PART NO	DESCRPTION	SPECIFICATION	SVC	ALTER	VEND
Q110	0TR127009AA	TRANSISTOR,BIPOLARS	KTA1270-Y (KTA562TM) TP KEC - -	R		
Q111	0TR127009AA	TRANSISTOR,BIPOLARS	KTA1270-Y (KTA562TM) TP KEC - -	R		
Q112	0TR127009AA	TRANSISTOR,BIPOLARS	KTA1270-Y (KTA562TM) TP KEC - -	R		
Q113	0TR127009AA	TRANSISTOR,BIPOLARS	KTA1270-Y (KTA562TM) TP KEC - -	R		
Q20	0TR107009AD	TRANSISTOR,BIPOLARS	KRC 107M TP KEC - -	R		
Q31	0TR105009AB	TRANSISTOR,BIPOLARS	KRC105M(KRC1205) TP KEC	R		
Q33	0TR105009AB	TRANSISTOR,BIPOLARS	KRC105M(KRC1205) TP KEC	R		
Q34	0TR105009AB	TRANSISTOR,BIPOLARS	KRC105M(KRC1205) TP KEC	R		
Q35	0TR105009AB	TRANSISTOR,BIPOLARS	KRC105M(KRC1205) TP KEC	R		
Q37	0TR105009AB	TRANSISTOR,BIPOLARS	KRC105M(KRC1205) TP KEC	R		
Q50	0TR107009AE	TRANSISTOR,BIPOLARS	KRA107M TO-92M KEC	R		
Q51	0TR107009AD	TRANSISTOR,BIPOLARS	KRC 107M TP KEC - -	R		
R01	0RD1501F608	RESISTOR,FIXED CARBON FILM	1.5K OHM 1/6 W 5.00% TA26	R		
R02	0RD1001G608	RESISTOR,FIXED CARBON FILM	1K OHM 1/4 W 5.00% TA26	R		
R03	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	R		
R04	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R100	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R101	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R102	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R103	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R110	0RD2200F608	RESISTOR,FIXED CARBON FILM	220 OHM 1/6 W 5.00% TA26	R		
R111	0RD2200F608	RESISTOR,FIXED CARBON FILM	220 OHM 1/6 W 5.00% TA26	R		
R112	0RD2200F608	RESISTOR,FIXED CARBON FILM	220 OHM 1/6 W 5.00% TA26	R		
R113	0RD2200F608	RESISTOR,FIXED CARBON FILM	220 OHM 1/6 W 5.00% TA26	R		
R114	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	R		
R115	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	R		
R116	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	R		
R117	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	R		
R119	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R120	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R124	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R125	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R127	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R128	0RD0472G608	RESISTOR,FIXED CARBON FILM	47 OHM 1/4 W 5.00% TA26	R		
R129	0RD0472G608	RESISTOR,FIXED CARBON FILM	47 OHM 1/4 W 5.00% TA26	R		
R130	0RD0472G608	RESISTOR,FIXED CARBON FILM	47 OHM 1/4 W 5.00% TA26	R		
R131	0RD0472G608	RESISTOR,FIXED CARBON FILM	47 OHM 1/4 W 5.00% TA26	R		
R132	0RD0472G608	RESISTOR,FIXED CARBON FILM	47 OHM 1/4 W 5.00% TA26	R		
R141	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R142	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R143	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R144	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R145	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R146	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R150	0RD4701F608	RESISTOR,FIXED CARBON FILM	4.7K OHM 1/6 W 5.00% TA26	R		
R20	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R21	0RD2202F608	RESISTOR,FIXED CARBON FILM	22K OHM 1/6 W 5.00% TA26	R		
R22	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R25	0RD3901F608	RESISTOR,FIXED CARBON FILM	3.9K OHM 1/6 W 5.00% TA26	R		
R26	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R30	0RD1002F608	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA26	R		
R40	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R41	0RD3301G608	RESISTOR,FIXED CARBON FILM	3.3K OHM 1/4 W 5.00% TA26	R		

R : SERVICE PARTS

LOC. NO.	PART NO	DESCRPTION	SPECIFICATION	SVC	ALTER	VEND
R42	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R43	0RD3301G608	RESISTOR,FIXED CARBON FILM	3.3K OHM 1/4 W 5.00% TA26	R		
R50	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R51	0RD5600F608	RESISTOR,FIXED CARBON FILM	560 OHM 1/6 W 5.00% TA26	R		
R55	0RD1004F608	RESISTOR,FIXED CARBON FILM	1M OHM 1/6 W 5.00% TA26	R		
R56	0RD5600F608	RESISTOR,FIXED CARBON FILM	560 OHM 1/6 W 5.00% TA26	R		
R57	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R70	0RD1000F608	RESISTOR,FIXED CARBON FILM	100 OHM 1/6 W 5.00% TA26	R		
R71	0RD1000F608	RESISTOR,FIXED CARBON FILM	100 OHM 1/6 W 5.00% TA26	R		
R72	0RD1000F608	RESISTOR,FIXED CARBON FILM	100 OHM 1/6 W 5.00% TA26	R		
R73	0RD1000F608	RESISTOR,FIXED CARBON FILM	100 OHM 1/6 W 5.00% TA26	R		
R74	0RD1000F608	RESISTOR,FIXED CARBON FILM	100 OHM 1/6 W 5.00% TA26	R		
R75	0RD1000F608	RESISTOR,FIXED CARBON FILM	100 OHM 1/6 W 5.00% TA26	R		
R76	0RD1000F608	RESISTOR,FIXED CARBON FILM	100 OHM 1/6 W 5.00% TA26	R		
R77	0RD1000F608	RESISTOR,FIXED CARBON FILM	100 OHM 1/6 W 5.00% TA26	R		
R80	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R81	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R82	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R83	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R84	0RD1001F608	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA26	R		
R85	0RD1001G608	RESISTOR,FIXED CARBON FILM	1K OHM 1/4 W 5.00% TA26	R		
R86	0RD1001G608	RESISTOR,FIXED CARBON FILM	1K OHM 1/4 W 5.00% TA26	R		
R87	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R88	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R89	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
R90	0RD4702F608	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA26	R		
RY1	6920W2D010A	RELAY	OJ-SS-112LM ORIGNAL DC12V 16.7mA 720 Ohm	R		
RY2	6920W2D010A	RELAY	OJ-SS-112LM ORIGNAL DC12V 16.7mA 720 Ohm	R		
RY3	6920W2D010A	RELAY	OJ-SS-112LM ORIGNAL DC12V 16.7mA 720 Ohm	R		
RY4	6920W5A012B	RELAY	G5G-1A-DT1-LG(1.5MS) OMRON DC12V 4.7mA 1	R	6920W5A012A	
RY5	6920W5A012A	RELAY	G5G-1A-DT1-LG OMRON DC12V 41.7mA 250V 16	R		
SW1	3Q60020A	SWITCH,TACT	SKHV10910 G/S ALPS NONE NONE UL. CSA	R		
SW10	3Q60020A	SWITCH,TACT	SKHV10910 G/S ALPS NONE NONE UL. CSA	R		
SW2	3Q60020A	SWITCH,TACT	SKHV10910 G/S ALPS NONE NONE UL. CSA	R		
SW3	3Q60020A	SWITCH,TACT	SKHV10910 G/S ALPS NONE NONE UL. CSA	R		
SW4	3Q60020A	SWITCH,TACT	SKHV10910 G/S ALPS NONE NONE UL. CSA	R		
SW5	3Q60020A	SWITCH,TACT	SKHV10910 G/S ALPS NONE NONE UL. CSA	R		
SW6	3Q60020A	SWITCH,TACT	SKHV10910 G/S ALPS NONE NONE UL. CSA	R		
SW7	3Q60020A	SWITCH,TACT	SKHV10910 G/S ALPS NONE NONE UL. CSA	R		
SW8	3Q60020A	SWITCH,TACT	SKHV10910 G/S ALPS NONE NONE UL. CSA	R		
SW9	3Q60020A	SWITCH,TACT	SKHV10910 G/S ALPS NONE NONE UL. CSA	R		
U01	0IZZW5A104A	IC,DRAWING	HD6433643RB89P 64SDIP BK CIS A/M/HEATER	R		
U10	0ISS240200A	IC,SAMSUNG ELECTRONICS	KS24C020 8P,DIP BK EEPROM 2K	R		
ZD1	0DZ510009AE	DIODE,ZENERS	UZ5.1BS ROHM TP26 NONE 1.5V NONE NONE NO	R		

R : SERVICE PARTS

LG Electronics Inc.

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